AMERICAN BEE JOURNAL

Vol. LXV—No. 8 Hamilton, Illinois, August, 1925 Monthly, $1.50 a Year

Women Beekeepers In the Spotlight

By Virginia Caldwell.

ALMOST any woman beekeeper is "good for a story," as the newspaper folks put it. There's a real interest in the idea of women making a success in any venture, and because so few persons have any idea of beekeeping, there is added fascination in getting a glimpse of this work. I know because I have collected a few newspaper accounts myself about women who have followed this vocation or avocation to advantage.

Others have been impressed by the idea of women beekeepers. Keith Preston, who conducts "The Periscope," a department in the literary section of the Chicago Daily News, is moved to comment on the subject from time to time.

"We see by the Book Leaf," he remarked, "that Anna Botsford Comstock, chosen by the National League of Women Voters as one of America's twelve most famous women, is best known by her book on "How to Keep Bees.' * * * For one woman that wants to keep bees there are one hundred that want to keep a husband, yet not one authority on this subject has made the roll of honor."

Anna Botsford Comstock, author of "How to Keek Bees."

He also was impressed by the versatility of Ruth Suckow, whose novel, "Country Folk," was ranked as one of the best of the year. Speaking of another writer, he said: "He lives in Cedar Rapids, near which Miss Suckow conducts her bee farm, and can tell you how he has seen Ruth driving a load of honey into town with a roll of manuscript under her arm."

Perhaps the account that interested me most was the one in the Minneapolis Journal about Mrs. David Brooks Green, of northern Wisconsin, because she declared that beekeeping was good for the nerves.

"There's nothing in the world quite so monotonous as housework," she was quoted, —"pure unadulterated housework—and there's nothing in the world so exciting as keeping bees.

"I wanted something to do that would take me outside, make me think that I had a finger in the world's pie, and I have certainly found it. In a beehive you have an almost exact replica of human life. The bees have their loves and hates, their work and their play, just as we do—but their world is really more Utopian than ours ever will be. And above all, beekeeping will teach you to think—and that's something washing dishes will never do.

"It teaches you the value of work. When you see that only the workers are happy; that the drones are killed; that even the queen bees are killed when they cease working, you realize that the human scheme of affairs, too, should have no place for drones.

"Most women are so nervous—and

Mrs. Butterfield, a successful Minnesota beekeeper.

Mrs. M. McCabe, also in Minnesota near Minneapolis. She has over 22 years experience.

you can't be nervous with bees; if you do, you are sure to get stung. I got stung a lot at first—everyone does. Beekeeping is very discouraging at times—but the times when it isn't are worth all the grief. As soon as I learned to be quiet and patient, the bees became quiet and patient—and we get along fine now."

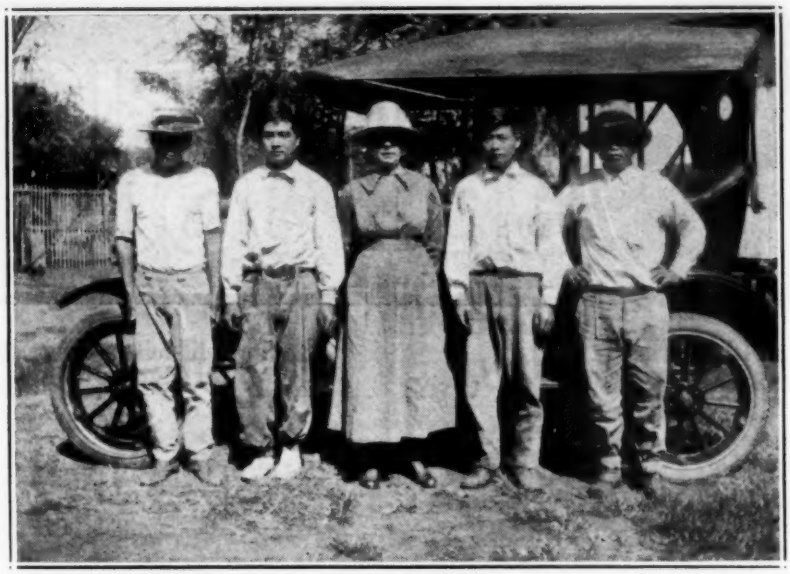
The story of how the Misses Harriet Sater and Marion Hoffman made a success of an apiary up in the foothills of the Olympic Mountains in Washington was featured by Grit, a nationally circulated weekly. They had been employed at the state agricultural college of Colorado, but, as the story puts it, wanted outdoor jobs.

"In 1919 they found a job in the apiaries maintained in connection with the famous Congdon orchards in North Yakima, Wash. Here they applied themselves to mastering the various essentials of commercial beekeeping. Their 'cash on hand' was small, so they made their home in a deserted corn-crib."

Then the story goes on to tell how they learned of the apiary, which was for sale "dirt cheap" because most of its colonies were badly diseased.

"Early autumn saw them settled in a tumble-down cabin on a stretch of logged-off land, with eight miles between them and the nearest village. The girls began their venture in the wilderness with 120 colonies of bees, but by the time the sick bees were weeded out the number had dwindled to 21. * * *

"They declare they'll never forget the first winter on the 'Mountain Flower Honey Farm,' as they christened their remote abode. They were snowbound for weeks, and the zero weather came in through cracks in the shack, too numerous to be stopped up. Once a cougar came at night. A bear that should have been sleeping foraged instead and destroyed a dozen of their remaining colonies. One night what they thought was a pack-rat got into the cabin. They threw a shoe at it. The intruder proved to be a polecat!"



Miss Mae Brown, assistant for large apiary company in Hawaii, with four Japanese helpers. She has complete charge of queen rearing operations for over 2,000 colonies of bees.

Another incident related is how they had acquired a flivver truck and driven a party of friends forty miles to see a big forest fire. They returned just in time to save their own clearing from being wiped out by flames. There were no flowers, and a poor honey crop followed. But in due time, so the account goes, there were good crops and at the time of the story they were prospering, with more than 200 colonies.

An article on the suitability of beekeeping for women was supplied to newspapers in the province of Ontario by the Department of Agriculture. A number of women beekeepers were quoted; all gave favorable replies and most of them some practical information for women who might contemplate such a venture. Among those who gave their views were Miss Ethel Robson of Ilderton, Miss Margaret W. Scott of Meyersburg, Miss M. B. Treverrow of Meadowvale, Mrs. Fred Ham of Bath, Miss R. B. Pettit of Georgetown, and Miss Jessie Lees of Erindale.

This interesting report closed with the significant quotation from Mr. Morley Pettit of Georgetown, former provincial apiarist:

"Through force of circumstances, more women are actual beekeepers than the records show. There is no obstacle in honey producing that a woman cannot overcome with her ingenuity."

Miss Ruth Suckow, whose novel, "Country Folk," ranks as one of the best. She keeps bees near Cedar Rapids, Iowa. Miss Suckow is at the left in the picture.

Holding a Swarm

By Bro. A. Veith.

In your "Questions and Answers" on page 278, "Alabama" complains of the loss of two fine swarms of bees which, after clustering on a nearby bush, left so quickly that there was no time to hive them. The best way I know of to prevent bees leaving so quickly is to sprinkle them with clean water immediately after clustering. Years ago I started to practice this and it never happened that swarms after being sprinkled, left before they were hived. Sprinkling a swarm of bees is advisable especially if the swarm cannot be hived quickly.

To prevent the issue of a second swarm you suggest that all queen cells except one should be destroyed or removed after the first swarm leaves. This will not always be effective unless it is done six or eight days after the first swarm issues, because the bees are apt to start new queen cells from the newly hatched brood which is still in the hive. This is what bees do when they have the swarming fever. Indiana.

A Yankee Beekeeper's European Rambles

1. Southwest Ireland

By Harry Lathrop.

I HAVE been traveling in southwest Ireland since I landed at Queenstown, May 2. I have visited Cork, Limerick, Galway, Ballinasloe, Tuam, Mallow and Blarney. The country, as a rule, is a good grazing district, and resembles, in many places, northern Illinois and southern Wisconsin. As early as the first of May the grass is deep and luscious, and there are many flowers, such as primrose, daisies and bluebells, with also great patches of furze bearing yellow blossoms. The pastures have much white clover along with other grass, but up to the present there is no sign of bloom on it. The weather has been wet and cold, only two real nice days during my stay. There are no bees in this part of the island, all dead on account of the adverse weather conditions of recent years, I am told. Also there is no honey on sale. They have nice booths and shops where candy, fruits and canned goods are sold, and the prices are quite high, but honey is not stocked. I saw one section of honey in a store window and it was the sorriest section of honey I ever saw on sale. One store in this town has Cuban honey in glass bottles. The half-pound bottle sells at one shilling English, or 25 cents in our money. It would seem to this Yankee that there is a chance to distribute some nice American honey in Ireland.

I am on my way to the lakes of Killarney, and when through there I shall make my way north to visit Mr. Digges, of the Irish Bee Journal, at Mohill, in Leitrim. I may find bees in the north and Mr. Digges can doubtless inform me of the real situation.

With a people using all kinds of expensive fruits and with cane sugar at about 11 cents retail, it is too bad that they should have no honey.

Politically, Ireland is quiet and most people seem satisfied with the Free State government. The country suffered much damage from the civil strife of 1921 and '22, but is recuperating. The treatment one receives is kind and generous.

The greatest industry is dairying and livestock. The climate is too cool to produce many things that we raise in America; and for bees, I would think it rather discouraging to have so many wet days.

Harry Lathrop

Harry Lathrop, our genial Wisconsin correspondent, is touring Europe. He will tell us of beekeeping there as he finds it.

This is a beautiful country with many clear streams, small and large, and many lakes. They claim good trout and salmon fishing and I have seen nice fish in the markets, but up to the present have not handled a rod.

Travel here is interesting and American tourists should not pass Ireland by; but for a home, give me the central states of the old U. S. A.

May 15, 1925.

Honey Bee Follow Wood Bees For Nectar

Messrs. E. A. Schwarz, preparator, and A. C. Burrill, curator, State Museum, Jefferson City, Missouri, made observations May 2, 1925, showing that honeybees get nectar from long-tubed corollas of bush honeysuckle (**Diervilla florida**). They tried continually to go down tube, only to stick long before reaching nectar. Then they would buzz around big wood bees (**Xylocopa virginica**), who did not seek to enter corolla, but crawled down outside near tips of sepals and punctured corolla tube with their strong, black mouth parts. Honeybees frequently followed these bees and stuck their proboscis through large slits made by wood bees. This is another instance of **Apis mellifera's** adaptability to secure nectar from flowers with tubes longer than the tongue. A war of words has raged in bee journals for some years as to how honeybees could get nectar from red clover with florets longer than bee tongues. Is it possible they follow some other insect to punctures in floret tubes there?

A. C. Burrill, Curator.

(I don't believe many honeybees puncture the corolla of blossoms to reach the honey, neither do I believe they get honey from red clover unless it is so plentiful in the blossoms as to be within their reach.—Editor.)

"Is there Really Honey In It?"

By A. A. Shields.

Really good advertising for honey for other uses is being done by such bread advertising as was cited by G. H. Cale in the December issue of the American Bee Journal. In a smaller way other bakeries that are using honey in their products are advertising the fact. There is an appeal in the word "honey" that would help sell bakery goods to those who were familiar with the delights of honey.

In fact, there is so much of an appeal in the word "honey" that it may be used for products which do not contain pure honey or contain some substitute for natural honey.

At any rate many products are called "Honey-this" or "Honey-that," yet the advertising does not state that they are made with honey. **Certainly, when any product is made with natural honey, that is a fact worth advertising.**

Such stores as the Morgan Stores in Chicago and suburbs make it plain that the "honey buns" they put out from their bakeries "are made with pure white clover honey." They get 15 cents each for these buns.

But there are many substitutes used by the bakeries of today—especially in the larger cities. Take pie fillers, for instance. Could any substitute for honey, or any preparation containing a minimum amount of honey be used in baking and advertised in such a way as to make the public believe that it was getting something with the **full deliciousness of pure, natural honey** in it, and thus work to the disadvantage of honey producers?

It is no secret that preparations which trade upon the appetizing appeal in the word "honey" are sold to bakers for use in baking. There might be honey in these. But in the case of at least one, if there is any natural honey used, its sponsors have not come right out and said so, when advertising to bakers.

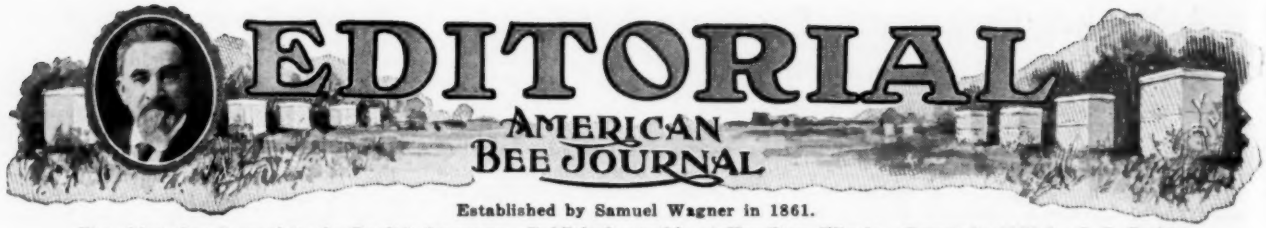
Then if genuine honey is not used in such products, what effect would they have upon people trying them for the first time? Suppose somebody bought a bakery product containing an imitation or a substitute and didn't like it? That person would be likely to go around saying, "Oh, I don't care for honey at all."

Should any food product which might be made better by containing a certain amount of pure, natural honey be allowed to carry the name "honey" unless it does contain it?

Is there any protection against the promiscuous use of the word "honey" in naming food products, when it is harmful to honey producers in general to have misrepresentation in foods that lack real honey?

On the other hand, is there a real benefit to the honey producers in having the word "honey" appear before the public so many times?

I only know that, before I buy, a baker must answer satisfactorily my question, "Is there honest-to-goodness natural honey in this?"



Established by Samuel Wagner in 1861.

The oldest Bee Journal in the English language. Published monthly at Hamilton, Illinois. Copyright 1925 by C. P. Dadant.

Entered as second-class matter at the Postoffice at Hamilton, Illinois.
C. P. Dadant, Editor; Frank C. Pellett, Associate Editor.
Maurice G. Dadant, Business Manager.

SUBSCRIPTION RATES:

In the United States, Canada and Mexico, $1.50 per year; three years, $3.00. Other foreign countries, postage 25 cents extra per year. All subscriptions are stopped at expiration. Date of expiration is printed on wrapper label.

The Spacing Of Combs

We have often given the argument that the spacing of combs is of great importance in the prevention of swarming. The popular spacing from center to center is 1¾ inches; we make the spacing of combs in the Dadant system 1½ inches. Now comes a Mr. Noblet, in "Apiculture Francaise" for June, with the statement that, for the past six years, he has used the spacing of 42 millimeters, or 1⅝ inches, between combs, from center to center. He claims the following advantages:

1. Better wintering, as the bees thicken the top of the combs above the brood to fill them with honey, thus getting more honey above the cluster and also a larger cluster.

2 Better spring conditions because the group can keep the brood warmer.

3. More ease in manipulations because the combs are more easily taken out.

4. Control of swarming, as out of 60 colonies with the wide spacing, he did not get a single swarm in 5 years, while with 8 colonies of the same size with the narrower spacing he had two swarms each season. He uses Dadant hives exclusively.

In the same magazine, a retired school teacher, J. Voinchet, testifies that his bees have helped him to earn enough to make up for his limited pension of 100 francs per month, so that he lives comfortably. He states that at the age of 28, he suffered from sciatica and cured it by causing the bees to sting him on the suffering leg, so that he has never suffered from it since. He says, also, that he has cured himself from gastritis and laryngitis, in his older years, by the use of honey in the natural condition and in milk, and in the shape of metheglin in place of acid wines, with which his stomach did not agree.

The Hoffman Self-spacing Frame

Here comes Allen Latham, page 371, with a very lucid explanation of the troubles caused by the Hoffman self-spacing frame. If the reader will refer to the editorial on page 212 of the May number, he will see that the editor had become partly reconciled to the Hoffman frame, although he took pains, many times, in his days of hard work, to whittle off the self-spacing edges when using such frames himself. Mr. Latham calls attention to a very great defect of the manufacturing of the Hoffman frame. Let us hope that the manufacturers will heed this criticism.

As to the use of propolis on those frames, it is very evident. One of the large manufacturers, who speaks more in public than anyone else, gave me the suggestion, when I recommended the wider spacing of 1½ inches for frames that the propolis added by the bees soon made up that extra one-eighth inch in frame spacing. So one of our manufacturers openly acknowledges that the argument of Mr. Latham, on that score, is right. Latham is a practical beekeeper if there is one.

Another article on Hoffman frames by Hr. Holtermann will be found in this number, also.

Experiments On Bees

Experiments upon bees by our scientists have lately been mentioned by the newspapers and magazines and have been commented upon by experienced beekeepers in a way that has caused considerable excitement. The newspapers delight in having something sensational, and thus some of the experiments have been quoted to show that the "little busy bee" was lazy, which none of the friends of the bee believe.

The experiments are all right. The experimenters are men who try their best to give actual facts. But there are so many factors in the work of the beehive that it is not astonishing if some of the results of experiments differ from our expectations. We have seen bees cluster on the outside of the hive and apparently loaf, when we thought they ought to be at work. We have, at other times, seen the bees fill all the supers given them, in an incredibly short time. Bees are not usually loafers. But they do not always work with the same energy, and we believe this is due to the field conditions. They do not see the need of working when their labor brings no returns.

Our scientific experimenters are men of value, but they cannot always meet the conditions necessary to successful findings. Let them continue their experiments and sooner or later we will have some positive facts which will not disappoint our producers or give cause for sensational articles in the pages of our periodicals that are always seeking for sensational facts. Not only do they seek the sensational, but they often misquote.

States Barring Bees On Combs

It appears that the error made in that item on page 283, for June, with which some of our readers found fault, was in the omission of the words "without inspection"; that is to say most states demand inspection of bees shipped in before they are permitted to come in. Whoever wishes to ship bees from one state to another had best get information from the state in which the bees are to go, in order to make sure of the regulations. Each state makes its own laws on that subject and there are 48 of them in the Union. Even the "Law Pertaining to the Honeybee" is unable to keep up with the laws made annually.

And now, for the information of a few strenuous correspondents who have concluded that the American Bee Journal is working against the interests of beekeepers, let us state that, last January, C. P. Dadant happened to be present at Albany, New York, when the question of a law on barring bees on combs was discussed by officials of the state. He expressed himself against **unconditional prevention** of entry of bees on combs into any state. Mr. R. B. Wilson, of Ithaca, one of the officials present, can testify to this. We are all trying to benefit beekeeping. So let us discuss things pleasantly and keen our temper.

Harry Lathrop

Harry Lathrop, whose articles on his European trip begin in this issue, is now in Paris, and writes us as follows: "I have a good time in France, but if you were with me I would have a better.

"I have been in England all June; bees doing well in Oxford County; crops look good in France; don't know about the bees."

Hruschka

Gleanings for July published a biographic note by Louis Alfonsus, concerning Hruschka. The photo given of him was one taken in his later years and is the same as published by "L'Apicoltore" of Milan, in July, 1888, shortly after his death. The photo reproduced in our "Honeybee" was an earlier one, when he did not wear a full beard, but only a mustache.

Hruschka was born in Moravia, but served in Italy as an Austrian officer, at the time when Italy was under the rule of Austria. He lived for a time in Legnano, not near Venice as Mr. Alfonsus reports, but near Milan, in the northwest part of Lombardy. He later moved to Dolo near Venice, and we understand that this is where he made the invention of the centrifugal honey extractor. He died in Venice. No wonder that both Austria and Italy claim him as their own.

We make this correction because some of our readers have written us asking why our statements concerning this remarkable man and the photo we gave of him did not tally with the biography given by friend Alfonsus. Austria and Italy opposed each other, the one having conquered the other and held part of it under subjection for many years. But Hruschka was a lover of both, loved and claimed by both. Both did him honor. Better the honey than the sting!

Perfection In the Care of Bees

We read, now and then, some advertisement claiming to have attained perfection in some line of manufacture. But it is rare to find a writer claiming perfection in his writings. We find one such, at present, in the "Classified Advertising" of a number of French magazines: "La Perfection dans L'Art de Soigner les Abeilles" (Perfection in the Art of Caring for Bees), by Abbot Donnot. Those of you who cannot understand French had best hurry and learn it, in order to become perfect through the reading of this perfect book. Further comment is unnecessary.

Is the Sale of Honey Responsible For the Spread of Foulbrood?

Surely, honey from diseased colonies is dangerous to bees. But if we were to try to pick out suspicious honey, we would have an endless task. Luckily the report of Dr. S. B. Fracker in the Journal of Economic Entomology, republished by him in a bulletin, indicates that the spread of disease by infected honey is exceptional and that most of the spread of foulbrood is due to the shipment of bees in hives and of used bee supplies.

Wintering In Alberta

A little item from the Irma, Alberta, Times found its way on my desk. It gives a report of H. T. Luther, of Lethbridge, secretary of the newly organized Alberta Beekeepers' Association. He reports that, at the Experimental Station, the winter loss of bees was 3½ per cent, while the average for the Province was less than 10 per cent. They are holding regular meetings of the association and expect to lay a broad foundation for the success of beekeeping in that northern country.

The Bee's Knees

The Atlantic Monthly, in the July number, publishes a most interesting article from the pen of Mr. Charles D. Stewart on the above question, discussing the different leg organs of the bees and showing their usefulness. To this is also added a description of the sting. It is one of the rare articles published in magazines concerning the honeybee, which prove quite correct. Mr. Stewart is evidently a practical beekeeper.

Bee Libraries

The readers will find in this number an announcement from Mr. H. F. Wilson, custodian of the C. C. Miller Library at Madison.

The efforts made to establish serviceable libraries in colleges for the use of beekeeping students are all commendable and will succeed in the course of time. The C. C. Miller Library, however, is intended to be not only a national library, but an international one. Until each state has a library of this kind in reach of the students, people who have books or pamphlets to dispose of, on beekeeping subjects, should send them to the Miller Library, so it may prove worthy of the reputation of the man whose name it bears. Whenever your own state establishes a State Beekeeping Library, we shall find no fault with you to send your spare literature to it if you prefer. But don't let any bee literature waste when it is wanted.

The End of the Crop

If it has rained everywhere as it has here, the crop may last into the fall months. But when the crop comes to an end, let us look out for robbers and also for cross-tempered bees. Usually after a good crop the bees are more irritable than at other times, perhaps because they realize that, having much to defend, they must be up early and late. At any rate, we have had more complaint of angry bees going out of their way to sting people in latter August and early September than at any other time, and this must prove very nearly correct in the Central States. A little care may save a great deal of annoyance. If any bees are robbing, the colonies will all be irritable, because of having to pounce upon lurking robbers. Keep your eyes open and your honey house shut.

Who First Discovered that the Queen Was the Mother?

Mr. Langstroth stated, and we repeated after him, that it was the English beekeeper, Butler, who first affirmed, in 1609, that the king bee was really a mother. This appeared in his "Feminine Monarchy."

Now comes a Spanish beekeeper, Marcelo del Rio, in "La Colmena" for April, stating that Luis Mendes de Torres, in 1586, wrote a treatise on the care of hives, in which he stated that the bee called "Maesa," or mistress, produced seed from which other "maesas," drones and worker bees hatched. He also states that Spanish beekeepers have clipped the wings of the queen from time immemorial.

Give him credit.

Legislation

Reading the English bee magazines we find that, in that country, also, there are two sides to the question of legislation concerning bee diseases. One argument which we cannot very well contradict is that there are altogether too many laws and that we ought to pass less of them and enforce those that exist a little better. That is true on every side. If we enforced the laws on carrying hidden weapons and punished those who are caught with them, there would be less holdups. We have certainly more crimes here than the least civilized countries, Africa and Mexico included.

Golden Anniversary

There are some compensations to old age. Here is one letter among the many we are receiving, concerning our coming Golden Anniversary:

"Ridgeway, Iowa, June 22, 1925.

"Dadant Sr.—Greeting. We also have been married fifty years. I have been a continuous subscriber for well beyond fifty years. You are adding new laurels to the American Bee Journal.

"Kindest regards to all the Dadants.

"C. E. Teetshorn, Ridgeway, Iowa."

Relation of Temperature to Development of Honeybee

By V. G. Milum.

PREVIOUS investigators have shown that the length of time required for the development of certain insects is inversely proportional to the temperatures to which the developing insects are exposed. With this information in mind, certain experiments were conducted at the Agricultural Experiment Station at the University of Wisconsin, to determine the relation of the temperature of the brood nest to the development of the brood in the honeybee colony. Although further experimentation will give more definite facts on certain phases of the work, the results obtained thus far are herewith submitted for the information of those who are interested.

In this experiment, five different colonies were used, each being placed in a hive body containing 44 thermocouples, or electrical thermometers, by means of which the temperatures of the broodnests could be determined without disturbing the colonies. These colonies being of different strengths and having different amounts of protection, provided a considerable range of temperatures within the broodnests. The temperatures of the broodnest were recorded at least once each day at various hours of the day during the course of the development of the brood on a particular frame. The average of these readings is considered as the average temperature for a particular point, which may not be absolutely correct for an individual point, but is relatively correct when comparing the temperature of that point with the temperature of other points in the same or other colonies. The points at which the thermocouples were located are indicated in the accompanying table by the figures in parenthesis, the first figure being the number of inches to the right from the left end bar and the second figure being the number of inches down from the top bar, respectively.

To procure brood of known age, the queen of each colony was allowed access to an empty broodcomb placed between other frames filled with brood for a period of approximately 24 hours, after which the queen was removed from the lower brood chamber and confined above the queen excluder in the second broodchamber. The lower broodchamber was kept supplied with full frames of brood to insure the brood in the experimental frames against lack of care. Additional experimental frames for the same colony were obtained by placing empty broodcombs above the excluder with the queen.

Examinations of the broodframes were made daily at the time the brood was being capped by the worker bees. Each frame was photographed as soon as any brood was found to be capped and on each succeeding day until all the cells were capped. Another photograph was taken before the brood started to emerge in order to eliminate any sources of error from brood that may have died and been removed by the nurse bees. The dead cells are not included in the totals given in the tables. As soon as the brood started to emerge, photographs were taken on each succeeding day until all the young bees had emerged. By comparing these photographs with the previous ones, it was possible to count the number of bees that had developed within a certain period of time. The length of time stated in the tables is figured from the moment the queen was released upon the experimental frames. The actual length of the development period of any group of bees cannot be stated definitely, because there was no way of determining at what time during 24-hour period the eggs were laid nor at what time the young bees emerged during the 24-hour period at the end of the developmental period. A study of the tables will, however, disclose certain interesting facts.

Only a part of the data is submitted at this time, but the results obtained on the other frames of these and the remaining three colonies are similar to the ones given here. It will be noted that the worker brood was capped during a period ranging from less than eight days to more than twelve days after the queens were released upon the frames. Close inspection will show that the majority of the brood was capped during the ninth day of its development, with earlier capping on the frames at the higher temperatures and delayed capping of the brood at the colder temperatures.

As regards the total length of the developmental period, it was definitely shown that the length of development of the brood varied indirectly to the temperature of the brood nest. In Colony No. 5, with the temperatures averaging from 95.4 degrees to 96 degrees F., some of the brood emerged in less than 20 days ¾ hour from the releasing of the queen on the frame, while none required more than 22 days ½ hour to emerge. It is reasonable to suppose that the eggs from which the last 26 bees developed were laid during the latter part of the 23-hour egg laying period. It is also probable that they emerged during the first part of the 23¾-hour period at the close of the developmental period. Hence, it is reasonable to assume that probably none of the brood required more than 21 days for the complete development and emergence. Since all parts of the broodnest of Colony No. 5 were at a fairly high temperature, the remaining experimental frames in this colony gave practically the same results.

If the records for Colony No. 3 are examined, it will be noted that on frame No. 6, with the higher temperatures, practically the same results were obtained as with Colony No. 5. But on frames No. 2 and No. 3, where the brood was exposed to colder temperatures, far different results were obtained. On the right side of frame No. 2, where there was an average temperature near the brood of 88.2 degrees to 88.7 degrees F., no young bees had emerged in 21 days 23 5-6 hours from the releasing of the queen upon this frame. If the total length of the period of egg laying, or 25¼ hours, is subtracted from the total periods up to the time of examination, the following results are obtained for the 82 bees on this frame: 36 bees required at least 20 days 22 7-12 hours for complete development, 32 at least 21 days 22 7-12 hours, 7 at least 22 days 21 2-3 hours, 6 at least 23 days 5 hours, while one bee required at least 24 days 2 hours for complete development. Similar results were obtained on the edges of other frames where the temperatures were low.

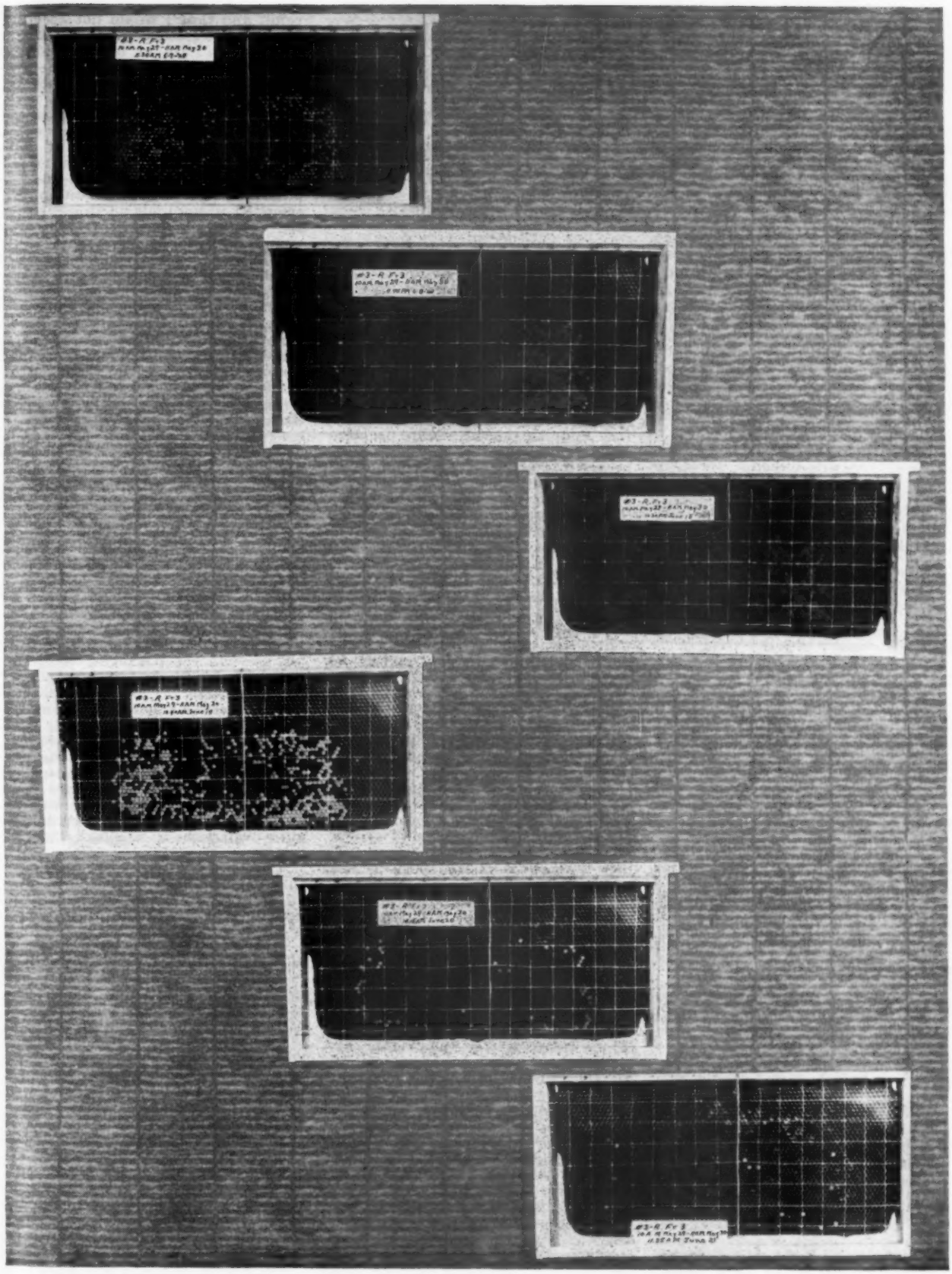
In a general way, this experiment has shown that the shorter periods of development are in the center of the frames and on those frames which are nearest to the center of the brood nest of the colonies having the higher temperatures. This shows one of the reasons why it is that strong colonies with sufficient protection are able to build up relatively faster during the spring broodrearing period than the weak colonies or those not properly protected from the cold, since the warmer temperatures permit of the development of a greater number of bees within a certain period of time.

Herewith is submitted a series of photographs showing the progress in development of the worker brood from the time of capping to the emergence of the adult bees. Since none of the brood was capped on June 6 and all the brood had emerged on June 21, no photographs were taken on these days. An empty frame divided into one-inch squares by crossed wires was used as a guage to locate and count the brood. The last line on each label card gives the date and hour of the photograph:

Relation of Temperature to Development of Bees

Colony No. 5—**Double packing case**—Right side of frame 6. Period of egg laying 23 hours, from 9:30 a. m., May 27, to 8:30 a. m., May 28. Average of temperatures: At point 3-3, 95.7 degrees F.; at 3-6, 95.4 F.; at 9-3, 95.7 F.; at 9-6, 95.6 F.; at 15-3, 95.6 F.; at 15-6, 96F.

Stage of development	Number of bees	Length of time days	hours
	0	7	0
Capped	92	8	1½
	232	9	0
	25	10	5½
	349		



A series of photographs showing the progress in the development of the worker brood from the time of capping to the emergence of the adult bees. An empty frame, divided into one-inch squares by crossed wires, was used as a guage to locate and count the brood.

	0	19	1 1-6
	105	20	¾
	218	21	¾
Emerged	26	22	½
	349		
	19 died		

Colony No. 3—**No packing**—Right side of frame 6. Period of egg laying 24 hours, from 1:55 p. m., May 27, to 1:55 p. m., May 28. Average of temperatures: At point 2-3, 92.8 degrees F.; 2-6, 89.8 F.; at 9-3, 94 F.: at 8-6, 92.9 F.

Stage of development	Number of bees	Length of time days	hours
	3	7	21 5-6
	242	8	21 5-12
Capped	12	10	2½
	257		
	0	18	21 1-3
	37	19	21 1-3
Emerged	206	20	22 1-6
	14	21	21 5-6
	257		
	4 died		

Colony No. 3—Left side of frame 6. Average of temperatures: At point 6-3, 93.5 degrees F.; 5-6, 92.8 F.; at 12-3, 93-8 F.; at 12-6, 92.3 F.

Stage of development	Number of bees	Length of time days	hours
	0	6	20 1-3
	25	7	21 5-6
Capped	345	8	21 5-12
	370		
	0	18	21 1-3
	100	19	21 1-3
	220	20	22 1-6
Emerged	50	21	21 5-6
	370		
	16 died		

Colony No. 3—Right side of frame 3. Period of egg laying 25 hours, from 10 a. m., May 29, to 11 a. m., May 30. Average of temperatures: At point 5-3, 91.2 degrees F.; at 5-6, 89 F.; at 11-3, 91.6 F.; at 12-6, 90.4 F.

Stage of development	Number of bees	Length of time days	hours
	1	8	6½
Capped	310	9	1½
	339	10	6¾
	18	12	0
	668		
	0	20	2 1-3
	248	21	2-3
	361	22	¼
	51	23	1 7-12
Emerged	3	25	1 7-12
	5 alive but not emerged		
	668		
	14 died		

Colony No. 3—Right side of frame 2. Period of egg laying 25¼ hours, from 10:15 a. m., June 3, to 11:30 a. m., June 4. Average of temperatures: At point 8-3, 88.7 degrees F.; at 9-6, 88.2 F.

Stage of development	Number of bees	Length of time days	hours
	1	10	0
	52	11	1½
Capped	28	12	¼
	1	13	¼
	82		
	0	21	23 5-6
	36	22	23 5-6
	32	23	22 11-12
Emerged	7	24	6¼
	6	25	3¼
	1	26	2½
	82		
	1 died		

Fraud In Express Receipts

By Jes Dalton.

Last winter a Mr. Moore, of Choteau, Mont., had me book an order for two good packages of bees, remitting $7.00 as part payment, before shipping time. His state declared a quarantine on those packages of bees. Not being at all sure I could get his bees through, and not to disappoint him, I promptly returned his cash; he got busy and telegraphed me instructions just how to get in touch with his state department, and my own in Louisiana, and get my state certificate of inspection recognized. I did this and was so pleased with his patience (It had now grown late), that I decided to reward him with an extra good deal. But I had in the meantime overlooked that he ordered and had now paid for two packages. So I shipped him the one and put him an extra package, as I supposed, of brood combs and bees, to unite with his one package to make a large colony, well pleased with my own generosity. Promptly back came an express receipt for the two packages in one crate with these words noted on it: "Approximately 90 per cent dead bees," and an explanation from Mr. Moore to the effect that about all the bees in one package were dead and a large portion in the other, as per notation in pencil on receipt signed by agent at Choteau, and reminding me respectfully that he had paid for two packages instead of one. Considering 90 per cent as really a total loss, I got busy at once and replaced his order, giving good measure for all this delay, again. I hunted up all my receipts covering the shipment, attached the receipt to them, calling for the "approximately 90 per cent loss" and put it into the claim department of the Express Company through my attorneys, on a 90 per cent valuation of the original shipment. Imagine my surprise in a few months to receive a nice letter and an offer for a settlement on a 50 per cent basis of what I had claimed. The Claim Agent was a new man, and this was my first claim with him and only one for my whole business of that year. Supposing that he had adopted a policy of offering one-half payment on claims, I went over the whole thing and explained how it was a 90 per cent loss and so receipted for by his agent, and approximated from the valuation as stated on receipt, and that I would not accept a 50 per cent settlement, that I would sooner sue. He at once submitted copies of the report to his department from the agent at Choteau, that differed entirely from the notation on the receipt, and from the facts in the case. This report acknowledged the receipt of one crate of bees, with 90 per cent dead in one package of the crate, and the other package in good condition, but reported in addition on this case, so the claim agent wrote, **that the queens in both packages were alive and all right.** Mind you, 90 per cent of the bees in one package were dead, but the queen in this package was alive and all right, and the other package was in perfect condition. **But, through a mistake on my part, there was only one queen ever put into those two packages,** the other was a make-up package to be united and make powerful colony. This agent, by changing the wording of his reports deceived both me and my customer, and undoubtedly deceived his claim department, but carried it a trifle too far, **even deceiving himself.** I wonder how much the management of these express companies are aware of this attitude of their employees? I am going to test this case out by submitting all the facts, backed by carbon copies to the officials in New York City. I wish to see how an agent can tell that "Both queens are alive and all right" when there was only one queen ever put in with the packages one going out without queen, purposely. In the meantime the moral of this is not to receive a notation in lieu of "Bad order statement" and be sure that the loss stated on any receipt is plainly computed so that there is no chance whatever for misunderstanding. Let the statement read plainly on this point; there will be ample room for enough points to dispute over without needlessly involving this one.

Louisiana.

Selling Honey Through Exhibition

It was one of the happiest weeks of my life, when I gave a display of bees and honey at Goshen, Ind., and in the City National Bank. The cashier of this bank is also President of the School Board and he called in the school children, a class at a time, and I had 15 minutes to talk bees, honey, flowers and Nature or God. I talked in all to 1,800 children as well as lots of men and women. It lasted all the week and, it being October, it was a most excellent time to advertise honey. The newspapers gave me a good write up, also. I wish you could have been with me and seen these little tots. Think of 1,800 children telling mother about the honey man and that they want to eat some honey.

I sold a lot of honey that week and advise you, if you wish to sell honey, to give an exhibit of bees and honey and be happy.

S. W. Mace,
Middlebury, Ind.

That "Old Man of the Sea" the Hoffman Frame

By Allen Latham.

JUST what Sindbad had in mind when he told his story of the "Old Man of the Sea" may be known, but I never heard what it was. The story is surely symbolic and has its counterpart very often in real life. I am inclined to think that beekeepers are especially prone to carry on their backs some burden such as Sindbad may have had in mind, and not infrequently more than onesuch burden. If there was ever a burden placed upon the back of beekeepers it is the Hoffman frame.

When we stop to consider that possibly more than half the frames now in use in all the beehives of the world are of the Hoffman type, the fact either makes my statement colossally true or else it stands ready to give me a colossal jolt. Just how a contrivance used in beekeeping gets its death grip on our backs I do not know; and why the majority of beekeepers are entirely blind to a glaring fault in some article pertaining to bee culture simply because that article has merit in some other way is also most puzzling. Probably in no other industry is there such a muddle as in beekeeping—such a mixture of merit and stupid blundering.

When Mr. Hoffman devised that frame he had two things in mind, possibly three,—self-spacing device, diminished surface contact, and perhaps warmer frame. The old free-hanging frame was always ready to jounce out of place and it was cold. So Mr. Hoffman devised a frame with the upper half of such a width that the frames would be in contact. Fearing that many bees would be crushed, he made one edge of the end bar with a real edge, while the other edge was squared. His design was to have one knife edge come against one square edge.

To bring about the desired juxtaposition designed by Hoffman, and to make all frames interchangeable, it was at once apparent that the two end bars of a frame should be so placed that the knife edges should be diagonally opposite. If placed so that they were on the same side of the frame it would come about that in handling the frames two frames would frequently come in contact with two knife edges together, and likewise two square edges together. When this thing happened the frames would get jammed too close together, the two knife edges sliding by one another and diminishing the space between the two combs. End staples did away in part with this difficulty, but not entirely. At first top bars fully filled the hive from end to end, but severe gluing led to shortened top bars. It is not my purpose here to go through the entire history of frame development, for it would take all the space in one issue of the Journal. It is enough to state that it was early seen that the diagonal arrangement of the knife edges was essential.

Unfortunately there are two possible diagonal arrangements. Look at the end of a Hoffman frame on the outside. It will be seen that the knife edge can lie either to the left or to the right. Which shall it be—the left or the right?

The A. I. Root Company have, so far as I know, always advised the edge to the right and have for years sent out with their frames careful directions with clear illustrations to make the correct method of assembling frames perfectly clear. That a great many beekeepers pay no attention to these directions is very true. Two years ago I bought twenty hives of bees, and of the 250-odd frames belonging to these hives not one single frame was nailed in what I have always believed to be the correct manner. A few years ago I happened in the shop of one of the numerous agents of the Root Company, and there on the work bench was a lot of frames being nailed and every one was the opposite of the proper method taught by the very company back of that man. And so it goes—I could cite numerous examples.

In the catalog of the G. B. Lewis Company of the year 1920 I find a perfectly clear picture of four Hoffman frames nailed and in contact assembled after the manner taught by the Root Company. But strangely enough, just below this illustration there appears a smaller insert showing the ends of two top bars in contact. These two are different from the four above. If manufacturers are so dense in this matter, can we blame the amateur beekeeper? Look on page five of that catalog.

In the 1921 Falcon Bee Supplies, on page eight, we see similar illustrations to those found in the Lewis catalog, but in this case there is agreement between the two cuts, and both are right.

In the Catalog of Bee Supplies put out by the Dadants in 1917, on page 17, may be found cuts similar to those found in Lewis and Falcon price lists, but here they are both wrong, if the Root teaching is correct. The Dadants are consistent, for the other day I received a gift of a frame filled with foundation from this firm, and this frame has the knife edge to the left.

In the A. G. Woodman Company catalog of 1921 I find cuts in agreement with the teaching of the Root Company.

These various catalogs were taken as they came from a pile of old ones lying near me. Doubtless other years would show the same story. Here in a nutshell we have the whole thing. A frame is devised to be standard and is recognized as standard. It cannot be standard if it is nailed up in two different styles. Yet the various catalogs from which beekeepers gather their information on such subjects form two schools. What nailing of the Hoffman frame is standard?

It may not seem of moment to the average reader that it is of importance that this nailing be standardized. As long as one makes all his own supplies and never sells nor buys any hives of bees, nor nuclei, he will never note any difference. Let him try to sell his hives to a man who nails his frames the other way. He will then find out something. Let him buy some hives and when he gets them home let him find that the frames do not match up with his frames.

Now the trouble began in the first place in that the early makers of this frame thought they would do a noble deed in the way of saving the lives of bees. Surely there would be fewer bees killed in pushing frames together if a knife edge was shoved up against a square edge than would be if two square edges were shoved together. Also they argued that there would be less trouble with beeglue. Now both of these ideas are foolish in the extreme. It is doubtful if any essential saving in bee life has occurred through this knife edge of the Hoffman frame. Having used thousands of square-edged, closed frames and having used more Hoffman frames that I wished to do, I know that a skillful manipulator will find little choice. In each case he must work the two frames together if he is to keep from killing bees. Shoving of either up together will entrap and kill many bees.

As to beeglue it is a most laughable fact that instead of saving trouble with beeglue the Hoffman frame is a regular trap for beeglue. The bees plug the two corners made by the knife edge against the square edge their entire length with glue. Soon these wonderful frames are closed ends with no knife edges. There are two semi-square edges of beeglue. This accumulation soon becomes so great that one cannot easily get all the frames into the hive. It was argued that when the glue was soft the knife edge could be forced up tight. This is sometimes true.

There is one catalog which I did not mention. It is that of the Diamond Match Company. This catalog uses old cuts mostly and does not do itself credit. It shows Hoffman frames as others make them now. Buy some of these frames of that company and you will get frames square on both edges.

Oh! will someone kindly tell me why manufacturers will go to the expense and trouble of making that knife edge when it is only a snare and a delusion? Why make it when the square edge is better in every way? With the square edge no one can nail up a frame wrongly if he wishes to do so. Dadant, Root, Lewis, Falconer and all the others cannot try to make their catalog different from the other fellow's so far as that frame is concerned, if they will all make the frame without any knife edge.

Many will cry out against doing away with the knife edge. If they do, it will be because of ignorance. They will find that two square edges will collect less than half as much beeglue as will one square and one knife. And when it comes to cleaning off beeglue, the square edge needs but one scrape of the knife or hive-tool, whereas the knife edge needs at least two. If we ever find a use for beeglue, I advise beekeepers to use two knife edges, and I will warrant that their annual output of beeglue will be trebled.

Now this muddle of the Hoffman frame is not the only "Old Man of the Sea" that the supply men have put upon fellow beekeepers. If you are willing to struggle along without any protest, then you deserve to have a backache.

The Hoffmann Frame

By R. F. Holtermann.

ON page 212, May number of the American Bee Journal, will be found a reference to the Hoffmann frame. The item contains a good deal of elucidating material, but allow me to add what was undoubtedly known to the one who penned what is contained in the item.

Hoffmann (I use the double "n" at the end of the name) made a frame which was spaced all the way on the side bar, top to bottom. Then, I think, A. I. Root curtailed the surface of contact to prevent pinching of bees, and perhaps for other reasons, and we have the frame so commonly used. The statement is made, "But at the present day, with combs built on foundation and nearly always straight as a board, the advantages of Hoffmann shoulders for spacing the frames is made more prominent."

Let me say there are a good many extensive beekeepers and I also object to the Hoffmann method of spacing:

First, because the surface of contact leads to the pinching and even killing of many bees. This pinching and killing angers the colony, and the pinching cannot be prevented in a fairly well-crowded colony, except with great care, and then at the expense of time.

Second, because a method equally as good is that of staple spacing.

The late S. T. Pettit got up a frame with a 1⅛ wide by ⅝ thick top bar, a ½-inch wide bottom bar and a side bar connecting the two. It tapered to half an inch at the bottom. The underside of the top bar had a slope from center to outside to conform to the natural slope of the cell. The late Mr. Pettit was logical, careful and thorough. He did not keep so many bees that he could not observe and study. His son, Morley Pettit, put a very valuable addition to the frame by making it self-spacing by means of a staple in the top bar near the side bar on one side and another on the other side of the top bar and in the same relative position to the side bar. This only gives two small points of contact and gives all of value in the Hoffmann spaced frame, especially if the bee space is under and not over the frame.

The Hoffmann frame served a useful purpose, but in my estimation it was only a step to something better, and that is the frame as Morley Pettit spaced it.

In closing let me say that it will not do to merely put one staple at one side and another at another, but the same side right and left must be adhered to or there may be two staples at one end and none at the other.

Brantford, Ontario, Canada.

(We are very glad to have this, because it shows that the dislike of the editor for the Hoffman spacing is still entertained by many practical beekeepers. In the old days, I can remember of only one leading beekeeper who objected to the Langstroth loose-hanging frame. He was R. L. Taylor, who called the Langstroth hanging-frame hive a "rattle-trap hive."

But friend Holtermann is mistaken if he believes that Julius Hoffman wrote his name with two "n" 's. I have a card in my possession, written by him to my father, in 1879, in which his name is very plainly signed.

Again, friend Holtermann may be able to show us the evidence that Hoffmann used a frame spaced all the way down; but Mr. Pellett has, here, in the American Bee Journal library, a frame which he secured from Hoffman's daughter, in 1921, and which she told him was of his original make. The frame is 11 inches wide by 12 inches deep, with the width of the top bar of the self-spacing type, for about 1½ inches at both ends, and the self-spacing feature about 3½ inches down on the sides.

The killing of bees by handling the frames is a point that is well taken. But, on the other hand, friend J. J. Wilder, of Georgia, holds and proves that you can handle combs so much more rapidly with the self-spacing features.—Editor.)

Why Slander Honey?

By George Gilbert

While I was in a neighborhood grocery store the other day a woman came in and asked for honey. The grocer pointed to attractive packages of extracted honey, but she turned up her nose:

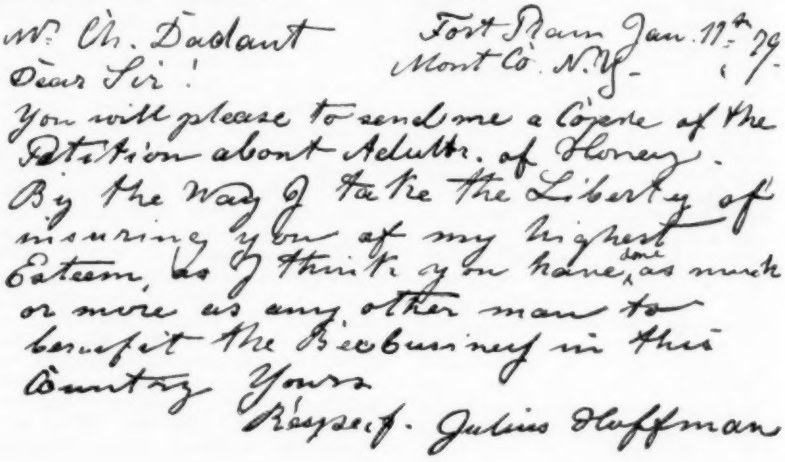
"Indeed, no! I want **pure** honey That strained stuff, half glucose, will not do for me, thank you. I'll go where I can get comb honey."

"But, madam, we are temporarily out of comb honey. We'll have some tomorrow. I know this extracted is pure, for I know the man who sold it—"

"That strained honey is always adulterated," loudly; "and I can't be fooled."

When she had gone the grocer told me that he could sell very little honey at all, either comb or extracted. The reason? A comb honey producer nearby who kept a few hives, sold his honey about the neighborhood. Along with the honey, in the mistaken idea that it helped his own trade, he peddled the standard lies about extracted honey—that it was adulterated, "went to sugar because the bees were fed sugar," and all that sort of rot. Knowing he was a bee man, people believed him, for they knew nothing of the subject themselves. He could supply about one tenth of the legitimate demand for honey in his locality. He did not care to produce more, for bees were just a fad with him. But he had innoculated the public so that people were afraid of honey, as such. He had slandered honey till all within reach of his voice looked upon honey as apt to be foul, bad for the health and of no account. People there who bought comb noney and had it candy, thought that the bees had "been fed on sugar to skin the buyer." The result was a good potential market for honey killed by lies about honey.

Every honey man, extracted or comb, who slanders honey, takes bread out of his own mouth. All honey is good, some better than others. The same can be said about butter, milk, eggs, oranges, apples and other well-priced foods. Quit your kicking on honey and get more money.


W. Ch. Dadant
Dear Sir!

Fort Plain Jan. 11th 79
Mont Co. N.Y.

You will please to send me a Copie of the Petition about Adulter. of Honey. By the Way I take the Liberty of insuring you of my highest Esteem, as I think you have, some or more as any other man to benefit the Bee business in this Country. Yours
Respect. Julius Hoffman

B. F. Patterson with phonograph horn which he uses as a swarm catcher at one of his desert apiaries.

Bees In the Arizona Desert

Glimpses of a Region Where There Is Little Rainfall, Where Every Bush Has a Thorn and Where Cactus Is the Most Characteristic Plant.

By Frank C. Pellett.

ARIZONA is unlike any other extensive region in this great country of ours. While there are large areas of arid land to the east and north of it, the peculiar climatic conditions of Arizona give it a flora all its own. There are many plants common to Southern Arizona not to be found in any other state, except in that portion of California immediately to the west of it. There is something about the desert that grows on one. At first it is likely to seem barren, dead and unattractive, but the more one sees of it the better it seems. There are attractions not to be found elsewhere. The wide open spaces, the clear air, the strange and unusual flora and the brilliant sunshine all combine to hold one's imagination and draw him again and again to the desert as opportunity offers. The stars seem closer at night than in the crowded eastern states. Because of the rarefied atmosphere they shine with more brilliance and every detail of outline of hill or plant stands out clearly on a moonlight night. One has never quite lived to the full until he has spent a little time on foot and alone on the desert. In the older settled regions we are too closely hedged about with artificial things; with houses and automobiles, fences, barns and machinery, which clutter up the landscape, to realize what a picture nature painted to begin with and what a place the world was before man spread his disturbing presence over the face of it.

Nature lovers like me are thankful for the desert, for it is the one region likely to retain something of its original condition for a long time to come. Since most bee men are nature lovers to a greater or less extent, it is not surprising that many of them are drawn to the desert and find life much to their liking in the great open places. Never can I forget the long drives with my good friends in Arizona and the many apiaries visited, located far from any other sign of man's dominion. After living for so long where every field is fenced and where there is no opportunity to enjoy even the shade of a friendly tree without trespassing upon someone's property, it was a great pleasure to drive out for perhaps fifty miles over the open country where not even a fence was to be seen and where everything was as free as the day the first man looked upon it and was glad.

W. C. Collier and a young giant cactus about 40 years of age. They live to be very old and attain a height of 30 to 35 feet.

Arizona is a region of very light rainfall. In fact some portions of the state do not average more than three inches within the year. In the higher altitudes there may be from ten to eighteen inches, but except in the highest mountains the rainfall is very scant and vegetation is sparse as a result.

Because of the lack of moisture over long periods, every bush and tree must be well armed with thorns if it is to escape being destroyed by the hungry cattle which are hard pressed to find sufficient food to keep them alive during the long periods of drouth. Only such forms as can stand long periods without moisture are able to survive and many of the trees are without leaves during most of the year. Today the shrubs stand apparently dead while the ground is as bare as a newly plowed field. Be-

A. J. Crawford and wife, of Phoenix. "Uncle Jack and Bobby."

One of H. E. Weisner's apiaries in big hives under mesquite trees.

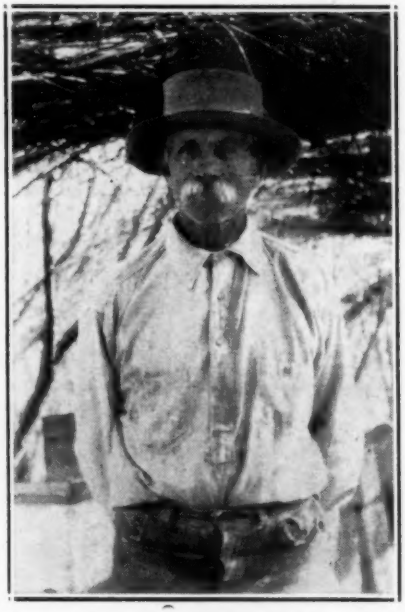
cause of the dryness, such trees and shrubs as grow are widely scattered and have root systems which spread over a wide area surrounding them to take advantage of the limited amount of moisture in the soil.

The rains which fall at uncertain and infrequent intervals bring a wonderful change. Seeds of annuals which have long remained dormant waiting for the welcome water, germinate and spring into life. In a surprisingly short time the bare ground has been covered with a mantle of green and blossoms of the brightest colors. Lupines and phacelia and filigree spread over the ground; the shrubs and trees spring into leaf and flower as if by magic and what one day was a bare and dead desert becomes a blossoming garden.

Under such conditions the beekeeper can never be certain of his harvest. Too many of his sources of honey bloom at uncertain periods, depending upon the rainfall. Many desert shrubs bloom after every heavy rain and many furnish nectar at two or three different times during the year. Accordingly, we may find a season of greatest abundance and heavy yields or a season when the bees scarcely gather enough to enable them to continue colony activities to carry them through until another year.

In the valleys where agriculture comes to a high state under irrigation we find a more stable condition. Alfalfa is grown in large acreage and yields heavy crops of honey with few failures. Cotton is also grown commercially and yields something, but is not equal to alfalfa. Oranges, cantaloupes and several other cultivated crops provide bee pasture. Many beekeepers in the Salt River Valley, as well as the smaller irrigated valleys, place their apiaries on the edge of the irrigated sections, where there is both desert and cultivated flora within reach. In such situations crops are reasonably sure.

One thing which impressed me is the number of bees present in such situations and the few available locations not already fully stocked. With the settlement of the valleys the beekeepers were quick to see the advantages of the region and many large apiaries were established. A considerable change has taken place in the farming operations of the valley within the past few years, which reduces the available bee pasture. Thousands of acres of alfalfa have been plowed up to give place to cotton, as was the case in some New Mexico locations, and when a location had been stocked to the limit of the alfalfa pasture, it became necessary to take away some of the bees to meet the new condition. This seems to happen in all the important beekeeping sections which I visited. Many beekeepers are attracted to Arizona for reasons of health and climate and usually find the best chance by buying out some one already established. There are many unoccupied desert locations which are uncertain in most cases.



Peter Benson, State Inspector of bees for Arizona.

The first beekeeper I met in Arizona was W. C. Collier, an old friend from Texas. Collier located his apiaries in the desert about Tucson, where he is entirely dependent upon desert flora. Mesquite, catclaw and giant cactus furnish most of his surplus, with something from Palo Verde, creosote bush and such annuals as phacelia, when there is sufficient moisture to bring them into bloom. Collier chose this place for reasons of health for his family. With him and with H. E. Weisner I spent some wonderful days. Prof. Vorhies, of Tucson finds time, along with his many other duties in the University, for some work with the bees, and from him I learned much concerning the flora of this region. Since there is no room at this time for the notes and pictures of the plants they will have to wait for a later issue. Weisner is the first convert to the big hive idea in this region and is placing all his bees in big hives. Since he secures larger average yields, it must be that the big hives are an advantage in carrying the bees through the long periods when plants are dormant and there is little for them to do.

Southern Arizona has a mild winter climate and extremely hot summers. During the month of January there were several days when the temperature was as high as 85 degrees and picnic dinners in the open were very pleasant. The beekeeper's winter problem is not one of protection against cold, but rather one of conserving bees and stores. In a dry winter like the past one there is nothing for the bees in the field, and consequently but little brood rearing. Since the bees can fly every day there is considerable loss of old bees and serious danger that the opening of the honeyflow will find the hives with insufficient population. The big hives provide room for a larger amount of reserve stores and consequently require less feeding and fussing. So far, Weisner seems well pleased with the results obtained by the change.

Since an unexpected rain may bring on a honeyflow within a few days, the strong colonies may gather a good crop at times when it is impossible to build up weaker ones soon enough to take advantage of it. Due to the warm weather during winter

it often happens that the bees start brood rearing too early and exhaust the stores about a month or six weeks ahead of the opening of the flow. The desert beekeeper has problems of quite a different nature from those of the humid regions. A man going from the East to Arizona must count on learning his lessons all over again. To insure strong colonies at the season when flows are likely to occur without using too much honey in brood rearing at a time when no honey can be secured, is a job to tax the resources of the best of beemen.

Salt River Valley

The most important honey-producing section of Arizona is the Salt River Valley, centering around Phoenix. Here one finds many beekeepers who own large numbers of bees. It is not a heavy producing region, but seems to have been until recently a very sure one. The reduction of the acreage of alfalfa in the valley seems to have had a marked effect on the average yield.

A. J. Crawford, the inspector of bees for Maricopa County, together with Mrs. Crawford, certainly went to the limit in making my stay pleasant. Day after day Mrs. Crawford would put up a delicious picnic lunch and the three of us would be off to see what we could. Mr. Crawford is a well-known figure in that region and writes for an agricultural publication under the name of "Uncle Jack." He calls Mrs. Crawford "Bobby" and there are frequent references to "Uncle Jack and Bobby" wherever one goes. A picture shown herewith is of "Uncle Jack and Bobby" eating noonday lunch on one of our numerous trips over the valley. To tell all of the folks we visited and the things which we saw would fill a book. While we were out especially to see the bee men and learn as much as possible of Arizona methods, nothing of interest was overlooked. There were dozens of big flocks of sheep wintering in the valley, numbering about 2,000 or more in a band in most cases. Thousands of lambs were coming and outfits were shearing. Think of that, you who live in the North; think of lambs playing in the green pastures while their mothers are being sheared, in February. I found it hard to accustom myself to the sight of mowing machines cutting down the fields of alfalfa hay in February. Flowers were blooming and birds were singing, hens were clucking to their flocks of little chickens and gardens were growing and children were barefoot, for all the world like May at home.

Everywhere in the valley the bees were humming and brood rearing was in progress. In places they were working on mistletoe and in others were getting nectar and pollen from eucalyptus or pepper trees, which have been planted for shade or ornament.

Mrs. Lovett, of the Lovett Honey Company, was shipping out packages of live bees to customers in California, and it was only February. I hope to find space for more about Mrs. Lovett and her bees at another time. "Uncle Jack" assured me that Mrs. Lovett gets as much honey as her neighbors after selling a crop of live bees early in the season. I have visited beekeepers in nearly every important honey-producing region in America but have never seen a place, except the lower Rio Grande Valley of Texas, which impressed me as being so favorable for the package business as the Salt River Valley in Arizona. It has the warmest winter climate with less cloudy days and stormy weather. With ample stores there is no trouble to get plenty of bees for shaking out packages in February. Various beekeepers estimated their average yield for a ten-year period at from sixty to one hundred pounds per colony. Since the surplus comes mostly from mesquite, catclaw, alfalfa and cotton, it would be quite possible to turn off packages in March and early April and build up again for the later flows. Some years the first extracting from mesquite will come in April, but most of the crop comes later. Considering the difficulty which is often encountered in getting the bees ready for the package trade in April in the Gulf region, this valley seems especially favored for this specialty. It seems surprising, indeed, that in this region there are no commercial queen breeders. It is probably due to the fact that honey production has heretofore been very dependable. I will hazard the prophecy, however, that the Salt River Valley will one day be one of the important queen rearing and package shipping districts of America.

Crawford says that he seldom finds an old queen with a swarm. Most swarms are supersedure swarms and several virgins are likely to be present. Due to the long season, breeding is much longer continued and the life of the queen is shortened accordingly.

Mrs. Lovett says that large hives are better for either bees or honey. She finds that a two-story Jumbo hive reduces the cost of operation. Labor being the largest item of expense, every manipulation that becomes necessary adds to the cost of production. A hive which is big enough to provide for the needs of the bees through the periods between honeyflows, without making feeding necessary, thus becomes an economical investment. When one hears talk of a two-story hive of the large size it makes one wonder whether our bees are more prolific than in the old days or whether half the possible production was wasted with the one-story hives in use. There is no longer any question in my mind but that bees breed much more freely in some localities than in others and that in such places a larger hive is needed to make the most of them.

P. H. Benson, of Palo Verde is one of the big honey producers of the state as well as the state inspector of bees. He operates about 1,400 colonies. Benson takes much pride in the fact that Arizona is now apparently free from disease. He expects an occasional reappearance for a year or two yet, but feels that American foulbrood is about a thing of the past. The inspection work is handled through the State Department of Agriculture, co-ordinated with the control of insect pests under direction of Oscar Bartlett, State Entomologist. Vigorous methods are followed in dealing with foulbrood. It is thought quicker, safer and cheaper in the long run to build a fire and have an end of it when disease is found.

This article has already exceeded the usual limit of space and there is no room to tell of an interesting visit to the ruins of an ancient cliff dwelling, in company with an old friend, Prof. Walter, where we found bees in the rocks above the former homes of some of Americas's first known residents; nor of the trip with B. S. Patterson to visit John Van Pool, who has a wonder apiary far out on the desert, and to see Patterson's bees in the Indian Reservation, where he has a redskin assistant who, by the way, is an efficient bee man. There is no room for stories of meeting dozens of other beekeepers who had interesting things to show, and a hundred other matters of real interest. I hope to find room for some of them in later numbers of the Journal, but our space is always crowded and much is left out for want of room. My stay with J. F. Lauderdale, at Yuma, has not even been mentioned, and Yuma is an extremely interesting region. With a note book of constant growth during three months of travel and about 300 photographs, it is a real puzzle to know how best to use the abundance of accumulated material.

Honey and Muffins

The "Calumet Baking Powder" people have an advertisement in the June number of "Liberty," showing one of their tins of baking powder, a section of comb honey, a dish of butter and a plate of muffins. The advertisement, full page, is entitled "Irresistible Calumet Muffins and Pure Honey." Liberty" is a 5-cent magazine which most of our readers must be acquainted with. Probably this ad will appear elsewhere. The Calumet people evidently know a good thing.

Swarm Prevention

For about 46 years I have used a 2-story hive, and if my memory serves me right, I don't think I have had 25 swarms. Give me Italian bees, a large hive and a wide bee space, a good honey extractor, and I would not fear swarming. Of course, I also want a good shade. I have seen many beekeepers set their bees out in the hot, broiling sun, where neither man nor insect could endure the heat. I did not wonder that their bees swarmed.

Wm. O. Sheppard.

A Scale Colony Record In Idaho

By Frank Beach.

I RUN my apiary for extracted honey. I can handle more colonies and get more honey and I like the production of extracted honey better than I do the production of comb or chunk honey.

In the spring of 1917, I thought I would put it up to the bees to tell me when to put on supers and perform other operations required of a man who looks to the bees for a livelihood.

I selected what I considered an average good colony having brood in 5 frames. My records do not show the exact date that I did this in 1917, but in all the years 1917 to 1924 I have endeavored to start the colony record on June 1st.

The selected colony was put on the scales and weighed each day that I was at the yard; the weight was recorded on an old division board which was kept hanging in the honey house, out of the weather.

I have continued this record for 8 years, and have made a plat of the records on cross section paper, so that each year's records could be compared with any other year and with study I hope to arrive at some facts, conclusions and ideas that might prove of value to me in the production of honey.

The principal source of honey on the Minidoka government irrigation project, where I live, is alfalfa and sweet clover.

The first bloom of alfalfa appears June 6 to June 16. From ten days to two weeks after the appearance of the finest blooms the fields are blooming freely and generally yielding nectar, in abundance. I have noticed that the first flowers seem to yield but little nectar. The scale colony begins to show increase in weight around June 20 for the average of the records. Sweet clover is blooming two weeks later and continues yielding nectar until frost. The value of sweet clover is shown in the poor honey year of 1923, when the alfalfa yielded little and the scale colony showed no increase in weight until after sweet clover came into bloom. Had there been fields of sweet clover as there are of alfalfa, the yield would have been greater. The sweet clover grows along ditch banks, mostly, and in waste places. Only in later years have the farmers taken to growing sweet clover as a field or pasture crop.

The farmers do not consider the desires of the beekeepers in the harvesting of the alfalfa crop. As soon as the first bloom shows, the cutting of the hay is under way, but since it takes some time to harvest the crop and all the farmers do not begin the cutting at the same time, we get a flow of honey from about June 20 to the first of September, with a reduction of the flow at the end of the first cutting and the beginning of bloom of the second crop of alfalfa July 15 to July 30.

Averaging the years, I find that half the increase in the weight of the scale colony comes by the first of August, the thirty-one days of August giving the other half of the yield.

With plenty of supers I can extract July 15 to August 1, re-super, and again begin extracting about August 20, leaving plenty of stores for winter.

In the eight years of record, 1919 and 1923 were disappointing, the alfalfa blooms did not yield nectar, due, I think, to climatic conditions. Just what the outstanding feature of this may be I do not know. The year 1919 was a very dry year; but little snow in the mountains to produce irrigation water. The yield of nectar started out like an average year, and with the cutting of the first crop of alfalfa the flow stopped abruptly.

The year 1923 shows a small continued yield of honey, but this was not a dry year. California had a failure of crop, and west of the Rockies did not seem to yield as good as normal.

The plat shows the influence of the alfalfa weevil on the honeyflow in 1923 and 1924. The larvæ of the weevil attack the buds of the alfalfa bloom to such an extent that the buds are destroyed and the blooms fail to open. Shortly after the harvesting of the hay, the larva attains maturity, drops to the ground, forms a cocoon and, turning into a brown bug, does not appear to do damage for the remainder of the season. With the coming into bloom of the second crop of alfalfa the blooms are normal and yield nectar. Two-thirds of the 1924 crop was secured after the first cutting of hay.

The weevil was not in sufficient number, until the past three years, to do damage. Parasites of the weevil are developing along with the weevil, and we hope that this pest will be held in subjection.

In 1923 the Twin Falls country, some forty miles away, showed a yield of fifty pounds to the colony, and Idaho Falls, some 130 miles away, showed a surplus of ninety pounds to the colony. These are all in the Snake River Valley, with an altitude of 3700 feet for Twin Falls, 4200 feet for Burley, and 4700 feet for Idaho Falls. And now comes 1924, a dry year, and an average surplus yield at Twin Falls and Idaho Falls of ninety pounds, while at Burley we had an average yield of surplus of one hundred and fifty pounds to the colony.

The year 1920 is the banner year for the scale colony. It shows a large daily increase in weight, many days a gain of ten pounds, several days twelve and fifteen pounds, and one day seventeen pounds. This year showed an increase in weight of 383 pounds and a surplus of 333 pounds.

Averaging the eight years of record, the scale colony shows 188⅜ pounds increase in weight. If we leave 60 pounds of honey to the colony, the scale colony shows an average yield of 128⅜ pounds.

But, due to my poor beekeeping, my yards have yielded me about 100 pounds surplus to the colony, average, for the past eight years. I have nursed along the weak colonies, with old queens. Lately I have been studying and practicing queen-rearing according to Doolittle, Pellett and Jay Smith, and I am investing in a breeding queen, bred for prolificness, gentleness and color, and I hope with young queens and better queens to bring this production up.

With the record of my scale colony I have not obtained all the information I might have. In 1924 I put the colony on the scale May 1, and from May 10 to May 17 dandelions were in bloom and the scale colony showed an increase in weight of eighteen pounds.

From the 17th of May to June 20 the scale colony decreased in weight eight pounds, when the flow from alfalfa began.

This flow from dandelions builds up our colonies and provides honey for brood rearing during the month of dearth between dandelion bloom and alfalfa bloom.

We have some alsike; it does not yield honey like sweet clover or alfalfa, but is a great source of pollen, the bees getting a surplus of this larva food at this period.

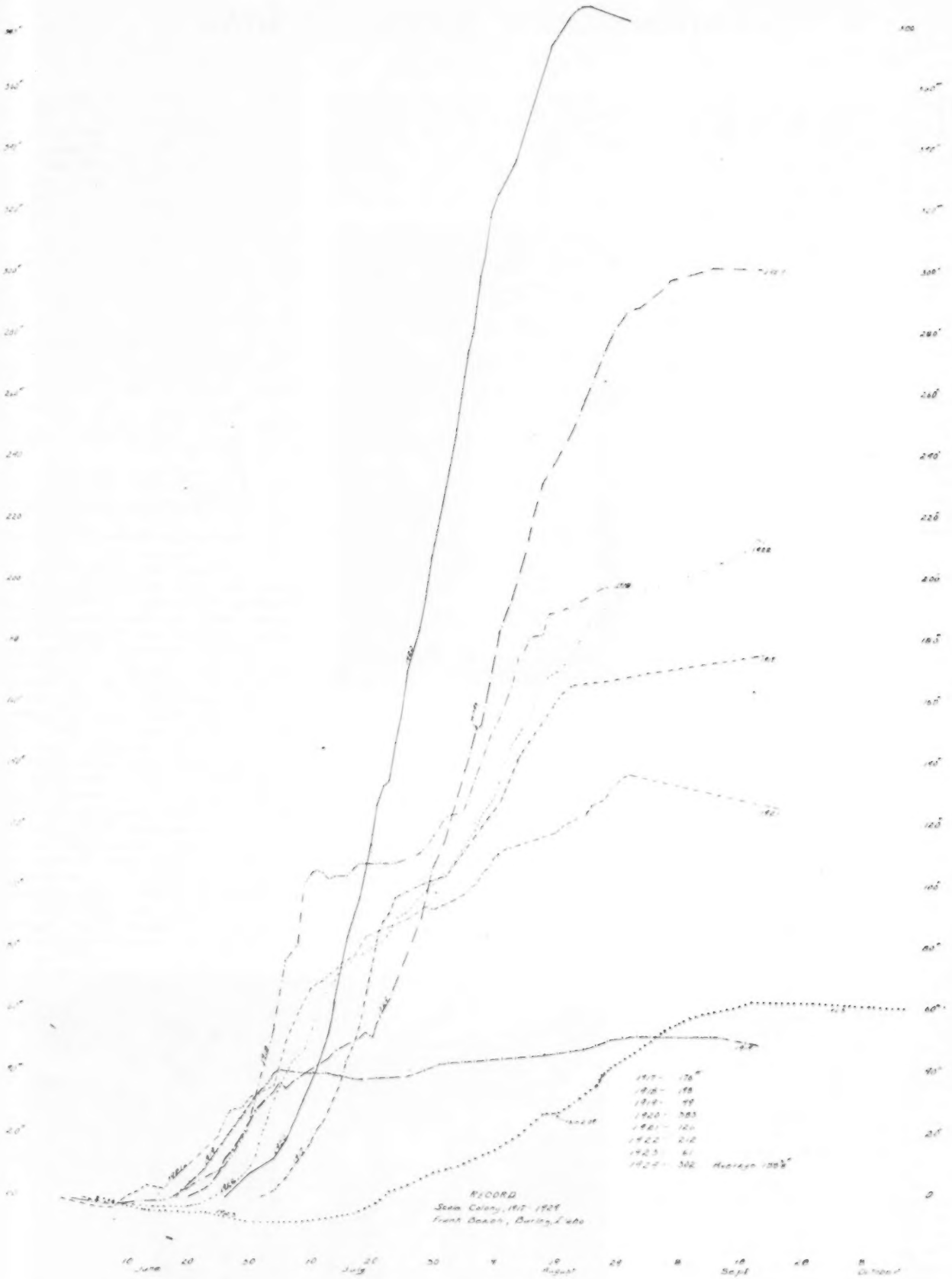
I realize that this plat shows more than anything else what Frank Beach has done and the possibilities of his own vicinity.

I have endeavored to get my neighbor beekeepers to put a colony on the scales each year. One of my neighbor beekeepers exchanges daily reports of reading with me, and we find that, although his apiary is four miles from mine, the daily variations are always the same, while the increase or decrease in weight may be slightly different.

The knowledge obtained by the use of the scale colony gives me confidence to go forward with any operation with the assurance that it is backed up by previous years of experience. The average production for each year overcomes the years of leanness and keeps the machinery of beekeeping moving along on a profitable basis.

We Beg Pardon

Jes Dalton writes to call attention to the fact that Louisiana should not be included among the states prohibiting the shipment of bees on combs. A certificate of inspection showing the bees to be free from disease is required with all shipments coming into that state.



Record of scale colony from 1917 to 1924, started in June of each year. Note how in 1923, a poor alfalfa year, with sweet clover only yielding, rain saved the day about August 19. From this point the line begins to climb. Note the line running level in the windy spell in 1924. By studying this plat, referring to the description Mr. Beach has given, much can be learned of the effect of weather, season and other factors on the honey yields.

Demonstration Apiaries In Iowa

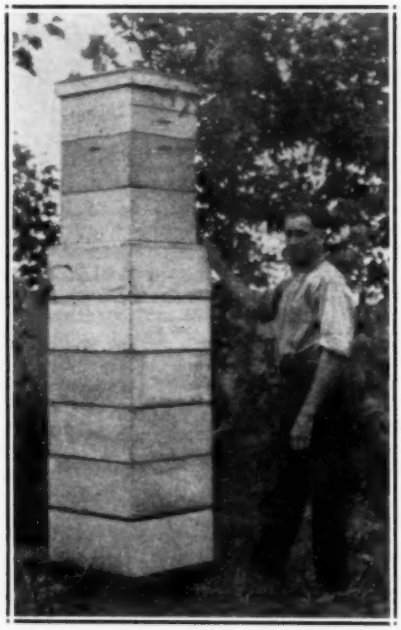
By A. D. Worthington.

THE Demonstration Apiary is conducted by the Extension Service through the County Farm Bureau. The object of the project is to increase the profit of the beekeepers by demonstrating the use of good equipment, proper care and attention of bees, eradication and control of bee diseases, and by producing clean, well-ripened honey and the marketing of it at a stable price in neat, attractive containers.

This has been successfully conducted in Iowa for six years and has proven very effective. There has been a steady increase in demand for the project. A total of 40 counties have requested a total of 120 demonstration apiaries for 1925. The beekeepers are well pleased with the results and there are continuous calls for information in regard to how they can secure a demonstration apiary for their locality. The records assure us that the project has been the big factor in controlling disease, transferring of box hives, increased yield per colony and increased demand and sale of honey locally in Iowa.

The direct object of the project is to solve the local problems of the beekeeper in the locality where interest warrants. For example, in Osceola County European foulbrood has been a severe menace, causing the beekeepers continuous loss in colonies as well as a large decrease in honey production. The demonstration apiary was established in the apiary of Austin Knudt, which was formerly about 50 colonies, but had been reduced to 20 colonies which were badly infected with European foulbrood. The colonies were united, requeened and given the proper care and attention. The yield the first season was three times the yield the previous year and European foulbrood disappeared. In Palo Alto County, the demonstration apiary was established in the apiary of Mr. Carter which consisted of 22 colonies in eight-frame hives, allowed to swarm at will. Five colonies were set aside for demonstration. Two hive bodies were used instead of one, the colonies were Demareed and given the proper care and attention. The five colonies produced over 900 pounds of honey, or more than the remaining 15 colonies.

At the farm of Kelly Williams, at Rockwell City, five colonies in crosscomb eight-frame hives, having American foulbrood, were transferred into Modified-Dadant hives in the summer of 1923, requeened in the fall and wintered in Iowa packing cases. During the season of 1924 the five colonies produced 1,000 pounds of bulk comb honey. The remaining eight colonies, several of which were treated for American foulbrood, in eight-frame one-story hives, not requeened, and left outside to winter, produced about 400 pounds of honey. European foulbrood was also present in this apiary. In Shelby County, the demonstration apiary was conducted at Jim Mickleson's farm at Walnut, Iowa. The ten colonies which were requeened, given good attention and care, produced 3,000 pounds of extracted honey. The best colony produced 500 pounds of honey.



Demonstration of colony at Jim Mickleson's, at Walnut, Iowa. It produced 500 pounds of honey.

A definite program is followed in the demonstration apiary work. First, it is necessary for the beekeepers to request the project through the County Farm Bureau. A specialist then attends a general beekeepers' meeting, some time during the winter. Here slides, films and charts are used to make the project plain. If there is enough interest manifested, beekeepers are selected to act as co-operators and to furnish the five colonies for demonstration apiary work. The requirement of a co-operator is that he will turn over to the bee specialist five colonies hived in good equipment; that he will assist in handling the five colonies according to the specialist's instructions; that he will allow the meeting to be held at his place for two years and during that time do everything in his power to interest his neighboring beekeepers in the project. At the summer meetings, seasonal subjects are discussed at the demonstration apiary. The subjects for lectures and demonstrations on the months indicated are as follows:

1. Preparation for Season's Work—Nov. 15 to March 15.
2. Spring Management — March 15 to May 15.
3. Swarm Control and Diseases—May 15 to July 15.
4. Fall Management—July 15 to Sept. 15.
5. Wintering Bees—Sept. 15 to Nov. 15.

An outline of each lecture is given the beekeepers attending the meeting for future reference. The results with the five demonstration apiary colonies are compared with five "check" colonies in the same apiary. The "check" colonies are set aside and are handled by the co-operator according to his wishes. Two or four demonstration apiaries are located in a county. This is determined by the interest shown by the beekeepers and possibilities of the localities for bees. The meetings are advertised by the county agent through the local press, by his directors, and by sending mimeographed letters to each beekeeper in his county. The Extension Service furnishes the names of the beekeepers and publicity matter. The expenses of the specialist are paid jointly by the State and County Farm Bureau.

In 1924, 76 demonstration apiaries

Beekeepers attending a meeting at one of the demonstration apiaries in Iowa.

were conducted in 26 counties. The average yield of the demonstration colonies was 152 pounds. The total yield of the 380 demonstration apiary colonies was 57,760 pounds. The average yield of the 760 "check" colonies was 99 pounds, or a total yield of 75,240 pounds. The average yield of all colonies in Iowa is 79 pounds. The average yield per colony in apiaries where specialists conducted projects was 116 ½ pounds. Therefore, the increased yield over the average colony in Iowa was 37 ½ pounds, or a total increase in yield of 42,850 pounds. The average price received for honey produced in demonstration apiaries was 18 cents. Therefore, the increased profit of the beekeepers in demonstration apiaries was $7,613. During 1924, 420 bee meetings were conducted by bee specialists, with a total attendance of 7,987 people, or an average of 19 (plus) persons per meeting. This attendance represents actual beekeepers. The value received in the actual tabulated results is only a small estimate of the real value the project has been to the beekeepers of Iowa. The big benefit derived has been its value as a means of controlling disease, transferring of box hives, creating a demand for honey and replacing the black and hybrid bees with Italians. At all meetings disease is mentioned and its care, symptoms, and danger discussed. Therefore, the beekeepers are on the lookout for it and are careful about exposing dead colonies. The beekeepers realize that we are helping them to solve their problems and are anxious to co-operate and assist in the work. Therefore, the demonstration apiary work is paving the way to a successful and economical foulbrood eradication campaign.

Life of R. F. Holtermann

RICHARD FERDINAND HOLTERMANN was born in Germany and migrated to Canada with his parents at a very early age. He was educated at Upper Canada College and at the Ontario Agricultural College. He served his apprenticeship in beekeeping with D. A. Jones, at Beeton, Ontario.

Mr. Holtermann was among the pioneers of the bee supply business in Canada, being employed first by E. L. Goold & Co., and then by the Goold, Shapley & Muir Co. from the time of its organization in 1892, until 1899. During that time he also kept bees for the company and staged some fine honey exhibits at annual exhibitions at Toronto and London, Ontario. In 1895 he became editor of the Canadian Bee Journal when the company purchased it from the interests succeeding D. A. Jones at Beeton. Toward the end of 1899 the very sudden death of an infant son so affected Mr. Holtermann that he resigned from all business activities and took up the work of a traveling evangelist. Later coming back to business again, he became the working partner of the firm of Foster & Holtermann, managing between eight hundred and a thousand colonies and dealing in honey outside the active season. This connection was continued until his death in June, 1925.

As a beekeeper, Mr. Holtermann was always a staunch advocate of large hives and of migratory beekeeping. Before motor trucks were thought of he was hauling bees from clover to buckwheat on hayracks cushioned with hay. Once he thought he would use motive power and chartered a threshing machine engine to draw a long train of wagons loaded with bees. It rained shortly after they got on the road, the clay surface became greasy and the rear end of the train began trailing off into the ditch. It finally became necessary to secure horses to complete the journey. In conventions where he was present these two subjects were frequently up for debate and he was always ready to champion the 12-frame Langstroth hive and migrating. After building two large bee cellars in succession near Brantford he moved clear away from both and practiced outdoor wintering.

Because of his fondness for public utterance along his own line, R. F. Holtermann was quite widely known among beekeepers in North America. For a number of years he was a visiting lecturer in the subject at the Ontario Agricultural College, and conducted some of the earliest government experiments in this line in Canada. At the meetings of the old National and at the various State and Provincial as well as County meetings he was a storm petrel for many years, always imparting or seeking information, or simply contending for his pet ideas, or making jokes in his own inimitable manner to liven up the sessions. He was President of the Ontario Beekeepers' Association during 1896, and served it in many ways during most of his life.

He was married to Lois Pettit, a daughter of S. T. Pettit and an older sister of Morley Pettit. Mrs. Holtermann and a family of two sons and two daughters survive him. The sons, W. T. Holtermann and D. G. Holtermann, are both engaged in beekeeping in Ontario.

Robbing In Outapiary---What To Do

Arriving at an outapiary in time of dearth, I find a colony being robbed. What shall I do with it, since I cannot stay to watch it very long?

Answer: It is first necessary to ascertain whether the colony is worth saving. Usually it is of little value, ordinarily it has no queen. At any rate, examine it, swiftly.

It may be that it has a good queen, but too many combs to protect, and the robbers have taken advantage of the fact that its bees cannot cover them all. The entrance may be too large. Find out what colony or colonies are robbing it. This is easy to do by taking a little flour and sprinkling the outgoing bees. Usually they will be found to belong to a single strong colony in the yard. If the colony that is robbed is worth saving, just exchange their locations, putting the robbed colony in place of the robbing one and vice versa. It is laughable to see the behavior of the robbing bees when they find their home to be the colony they have just come out of with plunder. It strengthens the robbed colony and causes the robbing colony to quit robbing, for all its active robbers have been transferred to a weaker colony and will have some work to do defending it against similar attacks. I have never found it to fail.

If the robbed colony is found too weak, close up its entrance as soon as its condition is ascertained. Then, just before leaving the apiary, give the few combs containing bees or brood to some strong colony, releasing the robbers at that time. Close up the hive, nail up the entrance. You may use it to put in a swarm or a division later. No other method will be successful to stop robbing under those conditions, when we cannot be there to watch.

A Danish Scientific Work On Bees

Review by C. W. H. Haselries.

"The Life of the Honeybee and Its Diseases," by Dr. Louis Bahr. The name of Dr. Bahr, of Copenhagen, has for years carried weight in the particular domain of bacteriology, so that it was a foregone conclusion that, when this book appeared, there would be found an exposition of special value to all beekeepers.

That the readers of the American Bee Journal may be informed of what the Danish beekeepers have learned from this valuable work, in advance of its publication in English, it was thought proper to give some idea of the main points presented.

Dr. Bahr should need no introduction to American beekeepers, since in the various publications of the Bureau of Entomology of the United States Department of Agriculture, his name stands in the front rank of authorities quoted on diseases affecting the honeybee, and their treatment. In this work he gives detailed account of how bees live and work and his descriptions are almost as picturesque as those of Maeterlink or Fabre. However, the scientist does not for a moment lose sight of the fact that it is on the practical side rather than the romantic that he must concentrate. So he turns to the sanitary and other essential requirements of bee breeding.

Whether on American foulbrood, sacbrood, or Nosema disease, Dr. Bahr goes direct to the first cause. Nothing has been neglected to make the book as all-inclusive as possible and when the English edition appears it will prove invaluable to those who try to make beekeeping a profitable investment.

Personal Recollections of the Editor

The Honey Extractor

ONE of the most interesting incidents of the old days was the invention of the honey extractor. Many had wished for some method of removing the honey from the combs, but no one had devised a way to do it, except by straining, until the Italian, Hruschka had the suggestion of centrifugal force. The method in which he discovered this very simple idea is well-known. He had given his little son a comb of unsealed honey to carry home in a dish. The boy put the dish in a basket and whirled it around like a sling. When the father saw the comb again, the honey had emptied itself into the dish. This was in 1865. In April, 1868, the discovery was published in the American Bee Journal, page 189, by Mr. Langstroth. Every one of us beekeepers, readers of the Journal, had a machine made, the same summer. They were very clumsy and bulky machines, but they did the work, although the number of combs broken in the first attempts must have been immense, if we judge of it by our experience. Our own machine was ridiculously bulky, for we had large combs and did not place them on end, but horizontally, in the extractor. Why? Because, like the old farmer who put a stone in the other end of his sack of wheat on his horse, we did not know any better.

The tinner made the extractor can for us and the blacksmith made the frame. The screen was just common fly screen, which had to be reinforced with cross pieces, as it bagged out of shape under the weight of the combs. An ordinary butcher knife was used to uncap. But we did not need much uncapping, for, in the enthusiasm of the beginning we extracted the honey before it was sealed, and of course, while it was still more or less unripe. But the quantity secured was enormous and A. I. Root reported having planned to empty his cistern in order to use it as a honey tank.

Every number of the American Bee Journal contained reports of experiences with the "Honey-comb-emptying-machine," as it was then called. But my father soon tired of such a lengthy name and, in the November, 1868 number, page 91, of the American Bee Journal, he proposed the name of "mellextractor." The prefix "mell" (honey) was dropped, but the word "extractor" was adopted, although a few insisted that it ought to be called "honey slinger," which would have been a thoroughly Anglo-Saxon name. A few suggested the name "Hruschka," which would have been very proper.

Factory-made extractors were offered about a year later, but they were exceedingly clumsy, though reported satisfactory. Prices were not as high as at present, for all sorts of things, and bee supplies were not then made in factories. The Peabody extractor (American Bee Journal, January, 1870, page 138) the first to be offered for sale, was simply a rotating can, with a handle at the top to turn it, a hollow socket as the only bearing, in the center, at the bottom, upon which the machine revolved and through which the honey flowed into a pail as soon as the machine was stopped. The screens upon which the combs rested were stationary, of course. The entire machine sold for $15, with two knives thrown in. The knives were just thin-bladed and curved on the end in order to reach into the recesses and irregularities of the combs; for at that time the invention of comb foundation had not yet reached the beekeepers and very few combs were straight. The more wide-awake of the beekeepers took advantage of the operation to straighten the

Original Dadant capping can, after 37 years' use.

crooked combs; but it was a sticky mess.

A little later, Gray and Winder, of Cincinnati, made a more practical extractor and offered it for sale. The self-reversing did not come for years afterwards.

We used our own blacksmith-made machine until 1878, when some very nice machines were offered by Mr. Everett, of Toledo Ohio. He was the man who also built our first capping can, my own invention, the only implement I ever devised. I needed it, as will be seen.

We were then increasing our apiaries rapidly. Not only did we make increase artificially with our own bees, but undertook to care for the bees of others.

A German carpenter who was making hives for sale began to peddle them around. He was making our own patterns and was quite successful. Some fifteen miles south of our apiary, a farmer beekeeper lived, an old fellow, wide awake and enterprising. He saw at a glance the advantages of movable-frame hives. He was capable and showed it by the locality he had selected for farming, along the Mississippi River bottom lands, at the foot of the bluffs. At that particular spot, a large creek, Rocky Run, brought much sediment to the low lands four miles wide. The result was a raising of the level of the bottom lands above high water at that particular spot. The crops were as large as elsewhere on the rich alluvion land, but the danger of overflow was much reduced. The men who owned that land had all the advantage of richness of the soil and little of the danger of overflow and consequent drowning out of the crops.

Quill Daugherty, that was his name, owned several hundred acres. He was a self-made man and enjoyed telling his acquaintances about his beginning, saying: "When I was 10 years old my father died; the overseer of the poor had to look after my mother and her children; now I am overseer of the poor and I am acquainted with both sides of the proposition."

Well, a few years after the invention of the honey extractor, I was informed that Mr. Daugherty had about 75 colonies of bees in movable-frame hives, which he was too busy to care for, himself, his farm requiring all his attention, and that he was looking for some one to care for them. I called on him. I had just been married and had lots of ambition. We made an agreement. I was to take care of the bees, furnish the hives and the supers; he was to harvest the swarms and at the end of the year we were to divide equally both the crop and the increase.

This was a good bargain. But we had bees of our own, and the season got ahead of us. The bees began to swarm at Daugherty's and when I came there, one fine June day, with my young wife, on a load of 20 empty hives (we still used some 8-frame Quinby hives at that time), he had hived swarms into everything that he could find, nail kegs, cracker boxes, soap boxes, old gums, even powder kegs. Swarms were hanging on the limbs of shrubs right and left, and some swarms had decamped. Quill Daugherty was out of humor. "Dadant, you're not taking care of your end of the contract; you promised to furnish hives. I've filled some 20 boxes and those 20 hives you are bringing won't last a week. What you go'n to do about it?

"Well, sir, I acknowledge I am beaten. Things got ahead of me. I'll just leave it all to you and I am willing to have you decide just what I am entitled to get. I'll be satisfied."

"Well, my boy, you're the right

kind of a man; that's the way to talk; so we'll say no more about it."

I got my share, sure enough; for although old Quill boasted of being an "Illinois sucker," he was fair when put upon his honor. Many hard-shell traders are like him.

But I have started to tell of the honey extractor and our tribulations with it. Let me come to it.

Although we had no facilities for taking care of the cappings except a bread-pan specially made, about 3 feet in diameter and 8 inches deep, and several extractor cans in which to drop these cappings when the pan was full, we could still get along at home, because we worked in a bee-proof house. But when we were at Mallard, at the home of Daugherty, we had only an old log house, in which he stored his mowers, corn shellers and corn cobs and all the rattle traps and rats of an old farm, in which to do the extracting. It would have been fairly good, had the building been bee proof. But any man who has known of the old log house, knows how the roof leaked both rain and bees, and how the chinks between the logs would accommodate the passage of squirrels, mice, rats and bees of course. This was where we had to extract four or five thousand pounds of the nicest kind of honey. We filled the chinks in the walls with newspapers. The big bread pan was soon full. The head was taken out of an old barrel, and the cappings dumped into it. It leaked more or less, of course.

It was then that I devised the "capping-can" or "uncapping-can," as some people call it. We would uncap several thousand pounds of honey, over that can and draw the separated honey from the outer can every evening. The reader knows how the capping can is built. It is an outer can with faucet and a pivot in the center, and an inner can or sieve fitting inside of the first, with its screen bottom resting on the pivot. As fast as the cappings were dropped into it, the honey drained down into the lower can. This gave us peace of mind, for when night came we simply covered our capping can with a cloth and dared the rats to do their worst.

Some people use a trough for the same purpose. Others now use a capping melter. I don't like it, for it spoils the honey more or less. Nothing is as handy as the capping-can, which may be hauled home every evening if necessary.

I know that many people use a central extracting plant. Well, I have never relished hauling the full and empty combs back and forth and still prefer what may be called the old way. There are no more bees at the old Daugherty farm; but we have bees and good bee houses in that vicinity, today.

Dr. Chas. C. Miller Memorial Apicultural Library

By H. F. Wilson.

A CATALOGUED list of the Miller Library in mimeographed form is now ready for distribution to those who will write for it. It has not been possible to prepare this catalogue at an earlier date, due to lack of clerical help. It is our intention to revise this list every year, adding whatever new accumulations may come in.

This includes a short story of the foundation of the library and a list of the donors. The library now contains 700-odd books and pamphlets, 800 volumes of journals. The endowment fund is now $2,000 and is paying a return of better than 5 to 6 per cent interest. The University of Wisconsin, as an institution, is not attempting to create an apicultural library, but is leaving this to the beekeepers. The university has, however, agreed to maintain the library and provide space and clerical help for its maintenance. The university is also providing a certain amount of funds each year for new books and magazines and will bind all of the material put into the Miller Library. The growth of this library will depend to a very large extent upon the interest taken in it by the beekeepers throughout the world.

Through the present available funds it will be possible to maintain current publications and current bee journals and books. However, there are many old journals and books not yet in the library, and, since this memorial is one of international character, beekeepers in all parts of the world should have in mind the securing of new additions for the library. Requisitions have now been issued for approximately 125 bee journals, and some of these have already begun to come. With the exception of rare books, it is possible for beekeepers in every section of America to borrow books from this library. Beekeepers making such loans will be asked to pay carrying charges both ways. In cases of rare books, arrangements will be made to copy abstracts for those who wish them.

It is a great pleasure to me to be the first custodian of this library, and I believe that everything that can be done has been done to get the library properly started and under way. However, in the future, great care must be used in seeing that the custodianship of this library is handed only to those who will have a very keen interest in it, and who will keep it up to date.

This memorial should serve not only as a library, but as a museum for old relics and a depository for letters and photos of eminent beekeepers. We already have Dr. Miller's typewriter and a set of honey dishes painted by him, as well as a number of letters of Dr. Miller, Langstroth and others. These are being carefully preserved and catalogued. Since this library belongs to the beekeeping fraternity at large, every beekeeper should take an individual interest in it and try to help us in securing anything and everything which has any bearing on the history of beekeeping. If you have any old books or magazines, do not fail to send them to us.

H. F. Wilson,
University of Wisconsin,
Madison, Wis.

Laying Workers

In regard to laying workers, Huber makes the statement that they are reared in cells so close to queen cells that a little of the food intended for the queen larva is accidentally dropped into those near-by worker cells with the result that this worker larva is developed a little more than the ordinary worker; just enough to be able to lay eggs, but not mate.

I think it was Mr. Quinby who first discovered laying workers in a colony in which a queen had never been reared.

I think there is an explanation for laying workers which might fit in with the statements of both Huber and Quinby.

In the American Bee Journal, June 1920, p. 197, Prof. Wallace Park remarks on how abnormally small some worker bees are when reared under unfavorable conditions. It seems to me quite probable that, when every condition is favorable for brood rearing (a high temperature, plenty of nectar coming in, and an abundance of nurse bees) a good many larvæ may be a little overfed and develop just enough to become laying workers. In fact, it is possible that laying workers are the usual thing in a queenright colony in prosperous times, their eggs being destroyed by the other bees and only saved when the colony becomes queenless.

I think this is a better explanation than the usual one; that an intense desire for brood causes the ovaries of some worker bees to develop until they are able to lay eggs—a thing which seems to me an impossibility.

E. M. Cole.

I believe your suggestions are correct. This would explain, also, how it happens that, when bees make emergency queen cells, they often have a cell or two of drone brood in the cells that are close at hand. This gave the opportunity for those who do not believe in parthenogenesis to say that those drones were caused by a different food, a most absurd suggestion. It is quite probable that, drone-laying workers being always at hand, some of the keenest ones take advantage of the queenlessness of the colony to lay a few eggs in the vicinity of the queen cells built.

Editor.

Using Inner Tube in Transferring

One of my customers cuts rings from an old inner tube for holding transferred combs in place. This is a novel method and seems to work well. W. E. Streetman, Georgia.

FOLKS WORTH WHILE

By Frank C. Pellett.

J. E. Eckert.

A Hustler From North Carolina

J. E. Eckert is decidedly a hustler, and he has accomplished much for the betterment of beekeeping in his state. Those keen eyes and the firm features tell their story. He is one of the younger generation who are so rapidly coming to the front. A different type of beekeeper than those of the past.

Eckert is interested in the development of honey marketing and distribution. Only the best and most carefully handled honey goes out under his label, a quality product that finds ready sale and is a welcome item all through the regular channels of trade. Eckert's label is his protection and his honey is known over a wide territory. Incidentally he is helping his beekeeping friends to go and do likewise.

He is the life of his state association, which annually publishes an attractive and useful bulletin. Anything worth while in North Carolina beekeeping will find Eckert back of it.

A Beekeeping Naturalist

The only thing that I can see wrong about Prof. Charles T. Vorhies, of the University of Arizona, is that there are not enough hours in the day to crowd in all the things which he wants to do. Professor Vorhies is head of his department in the university and so has a day well filled with the endless details which must come to his attention. Add to this the classes that he teaches and the experimental work which he supervises or attends to in person and it is easy to see that he needs a longer day.

Vorhies has an apiary at the university, where he gives his students some practical lessons. He gives some attention to a study of the honey plants of the desert region and has a rather comprehensive plan in mind for the development of the beekeeping work of the institution.

He has a long list of interesting work to his credit, including the study of numerous insect pests common to Arizona, the life history of the kangaroo rat and other rodents which reduce the available grass on the ranges, etc. If Vorhies had sufficient funds and a large enough organization to carry out all the projects which he has in mind he would give the world some interesting information about the animal and plant life of the arid southwest.

C. T. Vorhies.

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

TRANSFERRING FROM FRAME HIVE

I have not forgotten the American Bee Journal, but since my return from California, rich in experience and poor in pocket, the fate of most ranchers who try to make a home in that fine country, I have had no leisure for reading.

One hive out of three survived my absence; they were left 3 bodies high and packed round with sacks of straw inside of a big coop.

A few days ago I took off 50 lbs. of honey. The main flow is not on yet, and this was mostly crab-apple, I got the bees out of this top super with a bee escape and then cut the combs apart. The next two hive bodies are full of bees, brood and honey and the bees have joined the bottom of the top hive frames to the top of the next, so that when I lift the top hive all 20 frames move together, as well as being braced together horizontally.

I want to get them so I can handle them again and raise one or two queens, but how am I to get the bees out of those 2 hive bodies without killing bees or queen? I could fasten the two hives together, turn upside down and drive them up into a clean hive, but would they drive? I have also thought of trying to cut the two sets of combs apart with a thin wire, but I doubt if it would cut through so much comb. Please give me your advice.

I have about 10 bee books to refer to, Irish, French and American, but they do not meet this kind of case.

They are the best hive of bees I have ever had, and very gentle, and as I can line breed here, there being no other bees, it is a chance I do not want to miss.

They have, of course, an unclipped queen. Five swarms departed during my absence, and probably perished, as I have seen no signs of other bees around.

One of the first things I saw in California was a swarm of bees on a low tree in a public park. I asked the gardener who they belonged to, and he said a man kept them in a water tank. This proved to be an old wind mill water pumping outfit, where the bees were hidden, as they were not allowed to keep them in a town.

We came back North in the trusty Ford, which held together over mountain mule tracks and other obstacles, seeing about 3,000 miles of country, studying land and farming conditions as we went, personally. Oregon struck me as a far finer country in all ways than California. Farmers by the hundred were trecking out of California; they weren't smiling, either. We counted ourselves lucky to have a home to get back to. Sometime, if you like, I will write you an article on that trip and as to the reason why the farmers are ruined by organizations run by "business men." I fancy the beekeepers once had that experience, at any rate in California.

QUATSIMO, B. C.

Answer—The best way is to do as you suggest, smoke the colonies, turn the hives over and drum the bees up into another hive. Then you can do as you see fit with the combs In your climate, I do not doubt that you could transfer combs of brood at any time into frames and place those frames in a hive of bees. Here, it would be impossible in hot weather, and the best time to do it would be when the combs are lightest, just at the opening of fruit bloom in the spring.

If there are frames in both stories, then it would not be difficult to separate them, with a wood chisel or a hive tool.

Yes if you will write us a letter about what happened when you and others had to treck out of California, we might find it interesting to our readers, but I cannot promise.

SWARMING WITH GUARD ON

1. I have entrance guards on my hives of bees. They swarmed; the queen couldn't get out, so they went back. Now will the old queen kill the young queens so they won't swarm any more, or will I have to take the guard off so one of the virgins can get out and mate?

2. I had a weak swarm of bees die of cold and lack of stores recently. I found the queen of the hive. She wasn't dead, just chilled. I warmed her by the fire until she came to. Now she is as lively as ever. Will the chilling of this queen affect her egg-producing power if I introduce her into another hive?

3. Will permanganate of potash kill bees that drink the water containing it?

4. I have a hive with two supers on with a queen excluder between. Would it be all right to introduce a queen in the two supers? The two queens could not get together on account of the excluder. That way I have two queens laying at the same time.

5. How many different kinds of cells do honeybees make? MISSOURI.

Answers—1. There is no regularity about that, and that is why, when anyone asks our advice about entrance guards, we advise not to use them. We keep them for sale because the trade demands it. We used a different kind of entrance guard, in the old days—the "Quinby queen yard." It was made so that the queen could not fly out of it, when she had her wings clipped, but the worker bees were not hindered in their flight. We found that the workers became incensed at the old queen because she could not follow the swarm and so they either killed her or let one of the newly-hatched queens kill her and swarmed with the young queen. The only thing for you to do, if you use an entrance guard, is to examine the hive afterwards and find out whether they still have the old queen, or whether she was killed by a young one. Someone wrote that the young queen, being more nimble, usually killed the old queen in a fight, and I am inclined to believe it.

2. A queen is not always damaged in her laying power by chilling. It must depend upon the cold she had to endure. Some queens are rendered drone-layers and the eggs of some others will not hatch. In some cases they are not injured perceptibly.

3. That depends, also, upon the proportion of it. I have never tried giving it to them.

4. It is somewhat difficult to introduce a queen in a hive that has one already, although it has been done. But I have never heard of much success with more than one queen. A few years ago some of our modern beekeepers were very eager to prove to us that the one queen method was archaic and out-of-date, but all that fire has disappeared, although it may reappear from time to time. A good queen ought to be sufficient for any colony.

5. I know of only four kinds: worker cells, drone cells, queen cells and accommodation cells which are built in changing from worker comb to drone comb on the same sheet.

LATE TRANSFERRING

1. Having purchased a couple of hives of bees this spring of an estate, I found them in very poor shape, as to the condition of frame and comb, all crossed in about every shape; hives all decayed as well. Now, after moving them to where I wanted them, I decided to transfer them to the simplicity hives I bought at the same time. But I did not change the brood frames, but put them in as they were, for fear of my doing too much changing at one time. Would you advise shaking off the bees onto new frames of foundation at so late a time in the year, or leave them as they are for winter? And in the spring place a body on top of the old one for a month or six weeks, and then reverse the bodies, top one to bottom and bottom to top, making sure of the queen being in the bottom, but put an excluder between the two. I figured it would give the young a chance to hatch and go down in about four weeks, then I could take the old body and combs away and burn the frames, and melt the combs up, and not upset the queen's laying. I am using 10-frame standard hives. One of the hives of bees was quite weak in the spring, but it has done very well, so far, and I have taken a small amount of honey already. The best one I have two supers on and they are certainly very thrifty.

2. I have just purchased another hive this last week in an 8-frame hive, which I would like to transfer to a 10-frame hive. There is a super on it with the pound boxes full or two-thirds full of honey: Will it be a good time to make a change now before another flow of sumac and goldenrod, to take and put them in a 10-frame with two new frames with foundation in, then place the super on top as before, with a strip beside the same, to take up the space beside the super? I have not any comb drawn, so it would have to be new. CONNECTICUT.

Answers.—1. I would leave the bees as they are for winter and transfer them next spring, about apple blooming time, and transfer all the good combs, especially all the brood, to frames, as is done in transferring from box hives. Of course, it may be done as you suggest, but that is a very slow way.

2. Transferring bees from an 8-frame hive to a 10-frame, when the combs are straight, is a very easy job and may be done at any time. It is best to use full sheets of foundation in the extra combs, as the bees would be sure to build a lot of drone-comb in them. Your idea is correct.

MAKING LATE DIVISIONS

1. In the fall my colonies are almost too strong in numbers for a ten-frame hive, after I have taken off the large 10-frame extracting super, and also are rather light in stores, as the queen uses a lot of space for brood rearing. How would it be to make increase for the next season by taking away four combs of bees and substituting four combs of solid sealed honey and giving a hive full of these combs of bees a new queen? Out of, say 50 colonies, one could secure 25 new colonies fairly strong, strong enough for cellar wintering. I have never read of this being done late in the fall, so am asking your advice. I'm at least going to try it on a couple of colonies. S. DAKOTA.

Answer.—Many people find the same trouble that you do, when running for extracted honey; that is why Mr. Demuth recommends what he calls a "food chamber," which is neither more nor less than a full story or, preferably, a half story on top of the brood chamber. But your proposition is probably all right, providing you do not make those divisions too late. That is a matter for you to settle by trial, in your locality. If you supply a division with plenty of bees, a queen and plenty of honey, it will work.

With our large hives, we aim to crowd the bees for room, so that at the end of the harvest they will fill the brood chamber with honey as fast as the bees hatch. But if they are not crowded for room towards

the end of the crop, they will do about as your bees do, though to a less extent—have very little honey in the brood chamber for winter.

SHIPPING BEES BY RAIL

1. I have five or six 10-frame hives to ship by rail about 250 miles. Would like to know if they will get sufficient air when a screen is nailed over the front opening, and also the hole in the bee escape board?
2. When is the best time to ship?
3. What should one expect to get for fancy comb honey sections, from the merchant, which he retails at 25c?

N. DAKOTA.

Answers.—1. When the weather is warm and the hive populous, it is advisable to remove the cover of the hive and place upon it instead, a frame of wire screen. We use a frame which is so made as to keep the screen about an inch above the top of the brood frames while it holds them down at the ends. A shade board which is also a protection against accidents is put over the top. We give a picture of a method of placing screen on hives for hauling to outapiaries, on page 95 of "The Dadant System of Beekeeping." It is never advisable to close the entrances with a screen because, the bees being used to going back and forth out of this entrance, will worry themselves and clog it. Use a less amount of screen at the top when the weather is cool or the colonies weak.

2. Bees may be shipped at any time if the proper amount of ventilation is supplied. However, we would recommend that they be not shipped when heavy with honey.

3. The grocer should get 20 to 25 per cent of profit, so he should not be asked to pay over 20 cents for honey that retails at 25 cents and he should secure a guarantee that it will not be left on his hands if unsold.

SELLING BY PARCELS POST

Please answer the following questions on "selling prices of honey" by parcel post:

1.—When honey retails at 65c per quart, what should it sell at in ten-pound pails? I have been selling at $2.10.

2.—I think the wholesale price of comb honey is about $5.50 per case. What should it retail at?

3. What should the difference in price be for the different grades, wholesale and retail.

WASHINGTON.

Answers.—1. If you sell honey at 65 cents per 3-pound package (1 quart), that represents 21 2-3 cents per pound, and if the package is thrown in, without additional charge, then 10 pounds at $2.10 is too high, for the cost of the 10-pound pail is less per pound than the cost of the quart jar or tin. So you must either sell the quart package for more or the 10-pound package for less. I would suggest about 75 cents for the 3-pound package. Besides, if you deliver the honey by parcel post, you must add cost of delivery.

2. I figure that it is worth about 20 per cent to retail honey. So if a 24-section crate sells at $5.50, or about 25 cents per section, it should retail at $6.75, or 28 to 30 cents per section.

4. Retail should be about 20 per cent added to the wholesale price. Honey in bulk at 15 cents should retail at 18 cents, with such additions as are necessary to pay for putting up in small packages.

However, the cost of retailing depends very much on the labor involved. A greater amount of profit is needed in large centers than in the country stores, for the expenses are greater. But I believe a 20 per cent profit is fair.

Water In Shipping Bees

By L. T. Floyd, Manitoba.

In your first editorial in the June issue you make the statement, "No water is needed in shipping bees, if there is no brood, and if the food is not too hard to be consumed."

This statement I do not agree with, and I would like to know why you think bees do not need water. I have heard this statement made before, and while I may not be able to make my reasons so clear as to be convincing, I feel that some may be misled by your statement and consider candy as the best stores for packages.

During the past few years the shippers of bees from the southern states to Manitoba have gradually changed from candy to syrup until only a few now use candy. The result has been a wonderful reduction in the losses in shipment; in fact it has been so uniformly successful that it has upset some of our calculations entirely.

In the past four years we have built up a little business in the exchange of queens in May. Package bees arriving dead often carried in the cages live queens. These were taken over by our office and forwarded to those who needed them, either through losses of queens in wintered over colonies or in packages. By this system we felt we gave some good service and saved the queens that would otherwise be lost, and the cash helped to pay the loss in express charges. But this year we only received the orders, and although very many trips were made to the express office there were no dead packages, or so few that no queens were available.

One shipper from Alabama, who two years ago shipped on candy and reckoned on at least a 5 per cent loss, was induced to change to syrup. He is now, I think, the largest shipper into this territory, and we hear nothing but praise for his shipments. His replacements this year on more than a thousand packages did not reach more than 2 per cent. Now if bees do not need water, why the change?

You state if the food is soft enough. I would like to inquire what it is that makes the food soft. Is it not water?

Why do our bees die in winter when the honey granulates hard? Is it not because the water content in the honey is gone?

When bees use so much water, I do not think this can all be explained away by the statement that it is used only for the brood requirements.

Now, I am after information, and I hope that someone who believes he has the information as to why bees do not need water in transit will please pass it along; but as far as I am concerned with the thousands of packages coming into Winnipeg every year, and the receivers here all of the opinion that shipments on syrup arrive in better condition than on candy, these arguments will need to be backed by something pretty stiff.

In our case it is the results that count. We have had shipments delayed until they had been nine days in transit, and still in good condition, on thin sugar syrup, and this in very warm weather. We think it is because they need water and get it in the syrup.

(I am very glad of your criticism, because I see that I did not make my meaning clear enough.

The natural food of bees is honey, which of course contains water. But many beekeepers believe that bees must have water besides to drink as we do. Now, when we imported queens from Italy, in shipping boxes containing combs of honey, whenever the shipper insisted in adding water the bees failed to arrive in good shape. When Mr. Harbison shipped bees to California around the Isthmus, years ago, he did not give them any water, and reported somewhere (I can't just now find the quotation) that his bees arrived in splendid condition, but that a shipper who gave his bees water lost many of them.

Now, if you will give the bees in shipment very watery food or water besides the honey or syrup, you will succeed less, in my opinion, than if you give them food as near to the consistency of good honey as possible and **no water.** That is what I meant to say.—Editor.)

From Missouri

This is the colony I had some fun with last Saturday. It was wintered in two Dadant brood chambers, and of the twenty-two combs I found that seventeen of them had brood in them and most of the combs were full of brood. It is the finest swarm, I am sure, I have ever seen in this part of the country, and while it has consumed a large portion of its winter stores, it still has sufficient to carry it through until the clover crop is open, I feel sure. It had a great deal of drone brood and showed signs of preparing to swarm, although no cells had been started. If the season is at all favorable, this colony will undoubtedly produce an excellent crop of surplus.

For the past biennial period an appropriation of $8000 was made for inspection. The legislature this year only appropriated $4000. This is a terrible reduction in the funds available for apiary inspection during the coming two years.

L. Haseman,
Columbia, Mo., May 14.

Our Cover Picture

This, we think, is a fairly good picture of an ancient cliff dwelling at Roosevelt, Arizona. It does not seem of much beekeeping interest, but it is, as bees live in the rocks above.

Learning Selling From the Bee

The beekeeper who becomes discouraged sometimes in his attempts to market his honey may find something heartening in what "The Little Schoolmaster" of Printer's Ink, an advertising journal said in his "Classroom."

"There is a merchant in the southeastern part of Ohio who is a keeper of bees. A salesman for a food specialty house was telling him one day about the number of calls his firm expected him to make. 'They have us on a quota system at the home office,' said the salesman, 'and they expect me to make seven or eight calls a day, rain or shine, no matter what the train schedules may be. I wish the sales manager would get out here on the territory himself. He would see that he is asking too much of any man.'

" 'Maybe you're right,' replied the merchant, 'but everybody has to make a whole lot of calls or a whole lot of sales to earn his living. It would surprise you to know how many items of stock I have to sell just to pay rent, overhead and the clerk's salary. I get a lot of comfort out of thinking about my bees when I get discouraged. Maybe it would help you when you think the number of calls you are expected to make is too high.

"Did you ever watch a bee? A clover blossom, you know, contains less than one-eighth of a grain of sugar. In a pound of honey there are 7,000 grains. That bee, to make a pound of honey, must visit 56,000 separate clover blossoms. Each clover has about sixty florets, or flower tubes, and the bee must poke his nose separately in every one of these

"This bee, in performing that operation sixty times 56000 or 3,360,000 times gets enough nectar for only one little pound of honey. And the bee gets a mighty small commission on the honey she secures from her millions of calls.' "

From Texas

A. B. Anderson, Marathon, Texas, writes: "Our last year's crop ran 261 pounds to the colony. We hope to get 175 pounds this year. We have a white brush in this country that produces many times in the season, as much as fifty pounds of white honey in one honeyflow. The writer has been in a number of states and never saw this brush in quantity or produce as much honey as it does in this county (Brewster.)

"I have sold all honey up to August 1 to wholesale houses. Comb in bulk, 10 lbs 19c, and one cent rise on smaller lots. Extracted in 10-lb. pails at 12c and one cent rise on smaller, all f. o. b. shipping point. I can't get honey off the hives as fast as the orders come in.

"The dry weather continues in west Texas, but the plants are in good shape. The crop is below normal, although we have four months yet to get lots of honey in if we get the rain."

Meetings and Events

WISCONSIN BEE TOUR TO OCCUPY FOUR DAYS

Bee Disease Clean-up Areas and Other Interesting Beekeeping Features to be Visited

So many outside parties have expressed their intention of taking part in the Wisconsin bee tour that the following schedule is published for their convenience. Well-known apiaries will be visited between the points listed.

Tuesday, August 11. Meet at court house, Janesville, Wis., at 9:00 a. m. Tour apiaries in vicinity. Lunch beside Rock River under direction of Rock County Association. Night at the Lawton Hotel, Fort Atkinson, with special entertainment in the evening. Feature of the day: Study of the state disinfection equipment which is moved from yard to yard as needed.

Wednesday, August 12. Meet at the Lawton Hotel, Fort Atkinson, 8:30 a. m. Lunch on the grounds of the G. B. Lewis Company at Watertown. Night at Milwaukee. Features: The Beeware manufacturing plant and the Jefferson County clean-up area.

Thursday, August 13. Meet at Diehnelt bottling plant on State Highway No. 15, half a mile beyond car line, at 8:30 a. m. Lunch at Kewaskum. Supper at J. H. Beirne apiary at Oakfield, followed by the summer business meeting of the State Beekeepers' Association. Night at Fond du Lac. Features: The Washington and Fond du Lac County clean-up area, including a complete honey house disinfection plant.

Friday, August 14. Meet at court house at Fond du Lac at 8.30 a. m. Tour Fond du Lac and Sheboygan County apiaries. Lunch at apiary of L. T. Bishop, just west of Sheboygan. Visit Andrew Stevens' apiary near Chilton in afternoon and other near-by yards, if time permits. Features: Natural winter and spring protection, honey bottling in the home, and complete disease eradication in a large commercial apiary.

Visitors from Wisconsin and other states are cordially invited to join the party at any convenient point along the route and stay with us as long as they like.

Short talks at the different points will be made by Jas. I. Hambleton, G. H. Cale, E. R. Root, F. Eric Millen, A. P. Sturtevant, Kenneth Hawkins, E. W. Atkins, James Gwin, H. F. Wilson, and others. C. D. Adams will act as guide and generalissimo.

Reservations for hotels and space in one of the autos will be made by the undersigned upon request.

S. B. Fracker, Madison, Wis.

Those Beekeeping Libraries

It is a fortunate thing for the beekeeping industry that several institutions are now building up libraries of beekeeping literature. In a recent issue we called attention to the needs of the Miller Memorial Library at the Wisconsin University. Likewise we would call attention to the library of Cornell University at Ithaca, New York. Dr. E. F. Phillips, who is in charge of beekeeping work at that institution, has outlined plans which will make this library second to none. Any beekeeper who has old publications relating to beekeeping which he can spare will do well to send them on for permanent preservation and for the use of students. The development of such libraries will probably serve to preserve many publications which would not otherwise be available to those of coming generations. There are some books which were circulated by the thousands of copies which are now very difficult to obtain and in a few more years may not be had at all unless deposited in some such place.

Details of a plan to make the material in this library available to interested persons anywhere are being worked out.

Honey Producers Are on the Job.

In less than thirty-six hours after Adams & Myers, of Ransomville, N. Y., discovered that one of their apiaries in the town of Pendleton had been raided by thieves and fifteen colonies of bees and other equipment stolen, the Protective Bureau of the Western New York Honey Producers, aided by the Niagara County Sheriff and Captain Evans, of the Williamsville police, had the offenders, Fred King and Herman Zimmerman, of the town of Amherst, safely in custody. The men were turned over to Sheriff Wille, of Niagara county, by the Williamsville authorities and were allowed to plead guilty before Justice Bush, of Pendleton, on June 1 to a charge of petit larceny. They were fined $50 each and six months jail sentence, jail sentence suspended, and they were required to make restitution to the owners of $500 for the bees and equipment. They were also required to pay the $100 reward which was offered for their arrest and conviction.

The men also admitted stealing bees from Julius Victor, of Buffalo.

(If all highway robbers and hold-up men were handled in that way, there would be less crime in the U. S.—Editor.)

Bee Program for Rotary Club

On June 9 Mr. M. G. Christian, who had charge of the Rotary Club luncheon at Anniston, Alabama, invited me to assist him with a program he called the Honey and Honeybee Program. The Rotary Club offered a prize to the member who gets up the most interesting program.

Mr. Christian had a pound section of Melilotus honey before the plate of each member of the club, and it

(Continued on page 389.)

Natural Shade Is Best

By L. H. Cobb.

I have seen much shading hives with boards placed on top of the hives. This is not nearly so good nor so convenient as a natural shade. If there are no trees handy for shade you can make a natural shade by planting quick-growing annuals. The castor bean is a large, strong, tree-like plant that will furnish shade very soon and will be spreading enough to shade two hives readily. Probably the best made shade where we want something ready in the early summer, without having to plant each year or grow trees, is a framework high enough to work under nicely and covered with vines. If you have a grape arbor running either way you can set the hives so they are inside the arbor with the entrances near enough the row so the bees will fly out without confusion. They may face either south or east. The east front will start them into the fields early, and I prefer it to the west front, and like it just as well if not a little better than the south front. For a perennial vine to cover a frame or arbor where grapes are not desired the wisteria is ideal. It is free from insects and grows very rapidly, and when it covers the space its foliage comes early in the spring and remains until fall, and the flowers are very fragrant, and I have no doubt they produce more or less nectar. For annual vines we have the morning glory, moonflower, balsam apple, and wild cucumber. The moonflower is really the most desirable of these, and if you get a few plants from the greenhouse you can cover a large space very quickly with it. I would not advise roses, for the vines are not pleasant to work around. Taken all in all, the grape is the most satisfactory, for it gives the shade desired, and fruit as well.

Kansas.

Clean-up Areas In New York

The areas for beginning the foulbrood clean-up work have been selected by Dr. G. G. Atwood and his Apiary Inspectors. Messrs. Stewart and Wright, of the State Department of Farms and Markets who have this work in charge. Chemung and Tioga Counties constitute an area in Inspector Wright's territory and Genesee and Wyoming Counties make up an area in Mr. Stewart's territory. These areas will be inspected intensively this year and will continue to be inspected intensively until the Department is satisfied that American foulbrood is cleaned up in those areas, after which the area will be enlarged to take in more territory. In the mean time, in case an inspector does not get to your place, be mindful of the new kind of work being done. If you are urgently in need of an inspection, address your request for it to Dr. Atwood, of the Department of Farms and Markets, Albany, N. Y.

Meetings and Events

(Continued from page 387.)

was my pleasure to talk on the organization of the honeybees, their habits, and, also, to demonstrate the movable frame hive which Mr. Christian had provided with foundation, etc. We had a demonstration hive which contained a frame of brood, honey, worker bees, drones and a queen. I also gave them a little information about the queen and bee industry of Alabama, in this twenty-five-minute talk.

J. M. Robinson,
Agricultural Experiment Station,
Auburn, Ala.

Ohio State Field Meet

The annual summer field meeting of the Ohio Beekeepers' Association will be held on Thursday, August 20, at the queen-rearing yard of Fred Leininger & Son, two miles east of Delphos, on the Harding Highway. An excellent program is being prepared, and several important subjects will be brought up for general discussion, which will make this one of the most interesting meetings ever held in the state. Mr. George S. Demuth and Mr. C. P. Dadant will be the principal speakers. Mr. B. F. Kindig and Mr. Kenneth Hawkins have been invited to attend, and both will accept, if possible. There will be a banquet at Delphos in the evening, at which Mr. Fred W. Muth will preside. All persons interested in beekeeping are invited to be present.

Carolina Beekeepers' Meeting

At Charlotte, during September, there will be held a great meeting of the beekeepers of the two Carolinas. The program for this meeting will be the best. It will be worth while in time and expense to every beekeeper of these two states to attend. The meeting will last for three days. Of course, there will be no requirement to be there all the time.

We hope to publish the details and program in our next issue; in the meanwhile, make your plans to go at least for a day or so. Several automobile parties should be made up from Anderson County Association. The expense for the trip will not amount to very much. Let's go!

Goshen, Indiana, Meeting

Immediately following the State Field Meet at Delphos, Ohio, there will be held a big Indiana Field Meet at Goshen, Ind., on August 21, at the City National Bank.

C. O. Yost of Indianapolis, J. T. Johnson of Logansport, Mr. Geo. S. Demuth of Medina, O., and Mr. C. P. Dadant of the American Bee Journal, as well as others will address the meeting.

New Jersey Summer Meetings

Wednesday, August 5, at the apiary of T. A. Morrow, Livingston, Essex County; Saturday, September 12, at H. S. Kassakian's apiary, 600 Teaneck Road, Teaneck, Bergen County.

Can You Help?

We have the following letter of distress from a beekeeper in Minnesota:

"We had a terrible cyclone here June 2. It blew over my house, smashed the doors and windows, broke most of the furniture. It blew my garage entirely away. It broke one of my wife's ribs and peeled the hide off her leg. I had no insurance on anything. If there are any kind-hearted people who would like to help us I assure you it will be greatly appreciated.

Belden Stroud, Mabel Minn., Rt. 2.

New York Meetings for August

August 1, Erie; August 4, Western New York at Wilburt Wahl's, Williamsville; August 5, Oswego; August 7, State Federation picnic at A. A. French's, Theresa.

Honor to Phillips

Dr. E. F. Phillips has been appointed President of the International Apis Club, which has its headquarters in Benson, England.

Bee Problem In Louisiana

By M. E. Eggers.

The past season here in Louisiana has been exceedingly dry, but even at that, vegetation has held its own. Beekeepers who properly handled their bees made a fair surplus in spite of this dry season and some of the colonies I had an opportunity to examine were strong in bees and had plenty of stores to winter. During the last of the December just past we have had the first real good rains and somewhere around 4 inches have fallen, so that it looks very promising for the season ahead.

The principal honey plants here in southeastern Louisiana grow in swamps, but many important ones also grow on the higher cut-over land, ridges between the swamps, along river and creek banks or bottoms. The main sources in the swamps are tupelo, or gums of several kinds, pepper-vine, willow, water maple. In fact there is such a variety of nectar-bearing trees, vines, bushes and annuals that it is almost impossible to name them all. On the higher land grow the gallberry, mayhaw, sumac, heartsease, asters, goldenrod and some white clover. Sweet clover has not made its appearance, but I have good reasons to believe that it will grow well, as I am familiar with other sections of the country where it grows with conditions of soil similar to here. The great many sources for honey are distributed over the entire season so that the bees are always quite certain of making their owner a nice surplus.

So far but few have taken up beekeeping and only as a side line to some other business. Mostly all the bees I have had a chance to observe had been much neglected and their owners seemed but little interested in their care. I have good reasons to believe, however, that this section will prove to be one of the best beekeeping locations in the South. Since I just moved here recently from Wisconsin, I have still to learn the real value of this section for beekeeping. If things had not looked so promising I would not have made the change. I hope to give the readers an account of what success may be made here with bees as the time advances. Some of the things that attracted me here are: A mild climate where the bees do not have to be put into cellars or packed; the very best well water as is not commonly found throughout the South; good roads and a fine soil that will produce for nearly 12 months a year. Of course I do not want to infer that we do not have drawbacks, as the ideal place is still unfound by man, so far as to come up to every wish.

Bees usually start to bring in nectar and pollen sometime in February and will be ready to swarm in March or April. The honey flow is scattered from March until fall and during mild winters bees will bring in some nectar and pollen throughout the year. Here one can winter a two or three- frame nuclei successfully, so that allows making increase until very late in the season, providing they are given plenty of stores or fed. Still it is very important to see that the bees are well sheltered so as not to be exposed to the cold winds which are likely to come during the winter months. Very few beekeepers seem to give much attention to this protection and mostly the entrances are left wide open with possibly some empty supers left over the brood nest for the colony warmth to escape.

In regard to enemies of bees, I will say that we have them, but no more so than in many other sections of the country where beekeeping is carried on extensively. Many of the enemies we have here are commonly known in the North, such as the toad, skunk and birds. In some section here the ants have bothered, but they are easy to protect against and seldom do a great deal of harm to strong colonies, as they do in certain parts of Florida.

Locating an apiary here is not a hard matter as one can always find a good swamp location with a ridge of high land for an apiary site not in danger of overflowing. It is also possible to get these apiaries on good roads or highways. Often these sites can be had from the owner of the land for little or nothing and many times right at or near some home where they will be under observation. I have secured myself three very fine locations right near homes, and all on good highways, and with swamps and upland on all sides for miles. It would also be possible to locate apiaries along canals and travel to and from by boat.

"The Best Big Hive Is a Flexible Hive"

Comments by W. M. Egan.

The above title appears in a pamphlet just issued in Ohio and I desire to have this matter discussed, because we need plenty of information along this line.

As I understand it in the broad sense, all hives are flexible up to their capacity. The bigger the hive, the more flexible. I remember that in 1875 I built a hive that took a diploma. It was of the Simplicity-Root pattern, two-story Langstroth, with the frames running crosswise and three-fourths of the regular size. I had it painted and lettered "The Deseret Hive." Deseret means honeybee in the Book of Mormon. The beehive is the emblem of our state.

This diploma hive had this feature of flexibility: you could put in two division boards, the right distance apart and set seven or eight frames with the division boards close up, making a compact, warm, winter chamber for the bees, with a proper entrance, packing behind the division boards, with a chaff cushion in the upper story. We thought this made the bees' bedroom comfortable for winter.

If this hive had been automatic in its action and had changed itself to every requirement for the bees without the help of the beekeeper, it might have been ideal, but it was still a long way from an automatic flexible hive.

The other extreme of fixin~ up the bees for winter is the one called "The best big hive is a flexible hive." Imagine, after you have fixed up your home as comfortable as possible, that some giant comes along and rips the ceiling off from every room and puts in sticks and passageways that cannot be closed! To my way of thinking, this is about the worst thing to do for the comfort of the bees. Let them alone and they will make for themselves an automatic hive out of a tree or a barn corner. They will commence at the top and fasten all the combs air tight at that point and continue with each successive comb, down the sides, so that each space between the combs is a separate room for the bees to spend their winter rest without the draughts that we put into their apartments.

It seems ridiculous to me to open the whole top of the hive with bee spaces and top and bottom bars, making the whole hive like a big barn, for the bees to live in through winter and spring, when they need to concentrate the heat in order to live comfortably.

If I was to dictate or even suggest an automatic flexible hive, I would say: Take the biggest hive you have, put a tight cover on the Hoffman frames and let the bees glue it all up as tight as they want to. Feed them all the sugar syrup they want and let them alone through the winter.

Ever since the introduction of the

movable frames hive and three-eighth-inch space, we have been imposing on the natural desires of the bee to fix her house warm. If we had the closed end frame clear down instead of the Hoffman frame, it would suit the bees better and provide a dead air space at the end of each frame, closing the door to each bedroom the bees cluster in. The way some people fix the bees reminds me of some people in our public meeting houses, so afraid of smothering that they open the drafts on some poor bald-headed man and give him a death of cold.

If the spaces between all the frames were closed on the ends, the warm air could not get out and all the ventilation would be at the bottom. The bees could choose how many rooms they would wish to occupy and thus reduce the space, in fall, or in spring for brood rearing, without our help. If the hive and frames are large they have plenty of honey close above them, where it is kept warm and where they can extend their breeding in the best possible way.

Salt Lake City, Utah.

(The criticism of our correspondent concerning the open ends of the frames is one of the strongest arguments of the people who insist on keeping skeps, or box hives, as they say that the ends of the combs are not closed in movable frame hives as the bees intend to have them. There is something in it. But if the colony is confined within one story for winter, reduced to such combs as the bees can cover, by the use, which he suggests, of division boards with packing behind them, the top closed with a cushion, plenty of honey above the cluster in large frames, he has the best possible conditions for wintering. This is fully concurred in by our friend Tissot, of Ottawa, who writes to our people: "Tell Mr. Dadant that I have 100 per cent wintering in the large brood chamber."—Editor.)

Producing Comb Honey

By E. Williams.

SOME time ago there was a discussion in your journal as to whether a man could make a living running entirely for comb honey. I have produced comb honey almost entirely for the last fifteen years and I have at least kept myself and family out of the poorhouse. I have read the statement many times that a man could run a larger number of colonies and with less work for extracted honey than he could for comb. This is contrary to my experience. I am operating over 600 colonies and doing all the yard work myself, and I know I would dislike operating that many for extracted honey. It would mean much heavier work, more expensive equipment and more danger of spreading American foulbrood, and we have plenty of that now.

Last year was an average season and I give you the following statement:

Total honey sold		$5,100.00
Expense:		
Cases	$ 200.00	
Sections	192.00	
Pails	100.00	
Labor for self	1,500.00	
Extra labor	100.00	
Depreciation and exp. of truck	250.00	
5% depreciat'n on investment of $5,000	250.00	
Taxes	100.00	
Insurance	15.00	
Int. on $5,000 at 4¼%	212.50	
Beeyard rent	100.00	
Extras	50.00	3,069.50
Profit		$2,030.50

Just a few remarks on the expense items. I use No. 2 sections and buy them all at once, when they are the cheapest, in the fall. I use mostly the paper case; it is cheaper and gives good satisfaction. Of course, if the buyer wants honey to show, he will have to have cases with glass. Fifteen hundred dollars I consider a fair price for my own labor. I have figured the depreciation at 5 per cent. I believe this is plenty. The hives will last more than twenty years if taken good care of. I have figured the interest on investment at 4¼ per cent, same as Liberty bonds, which I think is just, as the taxes have been allowed.

This leaves a balance of 40 per cent on the investment. This is a great deal better than some stocks I have bought. No item here for foundation, as I make my own and produce enough wax for same.

Yes, I believe you can make a good living producing comb honey.

Pierpont, Ohio.

My Beekeeping History

By R. A. Morgan.

On June the 6th, 1925, I was seventy years old, and I think it fitting to give you a few facts and figures in regard to my career as a bee man.

In 1870 I started in the bee business in Buffalo county, Wisconsin, with one colony in a white oak log set up on end for a hive. In the spring of 1873 I made several Quinby hives from specifications found in the Orange Judd Farmer. I think the hives were about 16x20 and 14 inches deep, and no foundation. I just smeared beeswax on the points of the V-shaped top bars.

In August of that year, with mercury at 100 degrees, one melted down and I caught a large dish-pan full of honey, dead bees and bits of comb that ran out of the entrance.

I then abandoned the very deep hives and soon afterwards commenced using the G. B. Lewis & Co. eight-frame standard Langstroth hives, bought from Mrs. Frances Dunham, of De Pere, Wisconsin. I bought one twenty-dollar queen from Rev. L. L. Langstroth, and I remained in this same locality, Buffalo county, Wisconsin, until 1881, when I moved to Columbia county, Wisconsin, twenty miles north of Madison.

There I ran from 150 to 425 colonies, using Harbison sections, which I soon changed for Muth sections. I commenced using the Forncrook one-piece sections soon after they came out. I took first premium on comb honey in the fall of 1883 at the Wisconsin State Fair, at Madison.

I sold out and moved to Dakota Territory in 1887. I started with one nucleus and have had more or less bees since.

I edited the bee column in the Dakota Farmer, of Aberdeen, South Dakota, for ten years, more or less. I judged the bee and honey exhibit at the Minnesota State Fair in 1916.

During my life as a bee man I have strongly advocated three things: (1) That the honeybee is indispensable to the farmer and horticulturist as a pollinator. (2) That we should go back to the scriptural use of honey as an article of food. (3) That the bee business, if properly conducted, is the most pleasant and profitable branch of agriculture.

Answering Questions On Sainfoin

Mr. William Wilson, whose article on sainfoin appeared in our February number, has been flooded with questions. Here is one of his replies:

"Considering that I have received quite fifty letters of inquiry, I must make my replies short.

"1. My seedsman says sainfoin will grow in any soil, if not too wet, if the soil contains a good proportion of lime. Soil that grows alfalfa well should suit it. How much it will yield per acre will depend on various things, the same as what honey crop a colony should get. Here, in Gatinais, they reckon on three tons of hay from first cut and two tons from second, if weather is not too dry. It is never planted alone here, always sown over oats or barley in April, being mixed half and half with alfalfa seed then. The second year it and the alfalfa have the land. The sainfoin, being much earlier, blooms three weeks before the alfalfa.

"Not being a stock owner, I can give no opinion on its value as compared with alfalfa, but the farmers here seem to prefer it. My own interest begins and ends with its honey yielding qualities. I believe they sow fifteen pounds of each to the acre. Sow on a firm seed bed—roll; don't rake in. My seedsman says no inoculation is necessary."

(We must bear in mind that sainfoin has, so far, been unsuccessful in the U. S., so we must not put too much reliance on its possibilities. But trying it as our beekeepers are about to do, in a number of different localities, one or more may be found where the sainfoin will become acclimatized, and thus may become permanent.—Editor.)

Where To Get Ground Cork

It may interest readers of the American Bee Journal to know exactly where they can get cork, ground or otherwise, for watering troughs or pans. I hunted the Twin Cities for two weeks, in vain, and then thought of the Armstrong Cork Company, where I found cork of any shape or description.

None of the fruit people, dealers or distributors, wholesale or retail druggists, had any.

William N. Northrop,
Minneapolis, Minn.

Miller Library Catalog

Mr. H. F. Wilson, Custodian of the Miller Library, wishes to inform the public that the complete list of books and publications now available in this Library may be had by sending him 50 cents. The June issue of the Wisconsin Beeping, in which the list appears, also contains directions for any beekeeper to secure any one of these books or publications for perusal. The Miller Library is intended to become the leading bee library in the world.

Mailing Cages For Queens

Worth While Notes by W. Wilson

IT may interest you, and some of your readers, to read about my observations re above. I have for years been a regular importer of queens for my own use, getting them from many parts of the world. I had my first queens by mail in 1866, getting in that year some Cyprian, Ligurian and Carniolan. If my memory serves me right, all those queens in the early days were shipped in a little box about 4x2 inches, with a piece of comb in a frame. When shipped thus I never had one dead queen. Neither have I had a dead queen delivered since, that I have imported direct from a breeder in Europe, that was shipped in a Benton mailing cage. During the last four years I have had quite 500 queens through the mails, many of which I got from U. S. A., with varied percentages of deaths; but I have found the percentages have always been much lower when the queens came in Benton style cages with three or four compartments. In 1922 I had three lots from U. S. A. which for some reason were delayed in transport. Two of the lots, of fifteen each, were twenty-one days on the journey, and were shipped in flat cages having eight compartments in each, thus:

(o o o o)
(o o o o)

In one lot every queen and bee was dead, and in the other seven of the queens were alive, though most of the bees were dead. Each had plenty of candy. Ten days later I received another consignment, which I saw, by postmark, had been posted the same date as the other two lots. I did not expect to find any alive in consequence, but I got a great surprise on opening to find that there were ten of the queens alive and active; the five lots had died through starvation, every bit of candy having been consumed. That consignment was in Benton style cages, a little larger than the usual. I had one of those queens till September last year, when she was superseded. She was the best I ever had, and a Golden at that.

The past season I had six consignments from as many breeders, whom I wrote to, asking them to ship in Benton style cages of large size if possible, or put two small sizes face to face. Only one breeder took my hint, the others all shipping in flat cages, with a percentage of from 30 to 50% dead. Those were all thirteen days in the mails. I also received, about the same time, a parcel of four queens from the sixth breeder (I expected twelve) that had been thirteen days in the mails and every queen and bee was alive. Fifteen days later I had delivered other two packages of four queens each, which I saw were from the same breeder, the postmark showing they had been posted same day as the four I had received fifteen days previously. Now those eight queens had been in the mails for twenty-eight days, and all the bees and queens looked vigorous, with not a dead bee among them. They were mailed in small Benton mailing cages, each lot having two cages put face to face.

Faronville, Loiret, France.

(This is an experience from an old, experienced beekeeper, which should be heeded by exporters or importers of queens.

The fact that we have not been very successful in getting queens shipped to Europe, by queen breeders in this country, is rather disappointing, especially in view of the fact that we succeeded, or rather an Italian shipper succeeded, in sending us over 90 per cent of the queens alive, some fifty years ago.

America's queens are getting some recommendations, in other countries and it behooves our shippers to practice sending queens long distances in all sorts of circumstances. It behooves us also to try to retain the good name that some of our breeders have secured for our queens. Breeding queens at low prices is not the goal. What is needed is to breed good queens that may be a credit to the queen breeders. Low priced queens are orten of low value.—Editor.)

Pellett On the Road Again

Mr. Pellett, accompanied by his son, Kent, and another young man, James Garretson, from Hamilton, is now touring the Western Provinces of Canada. His last letter was from Winnipeg, where he finds quite an increasing interest in bees. He is gathering information and photos which will be published in the Journal after we publish the result of his travels in the arid Southwest of the past winter.

Pellett is never happier or healthier than when he travels, camping wherever he happens to be at night. Beekeeping and botany are his hobbies and he will probably enrich his next edition of "American Honey Plants" with many additional flowers from both North and South.

A Good Motto

"As soon as you can, make up your mind to do more for the State Association than you ever have done. Then see as many beekeeper neighbors as you can. Get them to join the Association, collect their membership fee of one dollar and send it to Secretary Geo. H. Vansell at Davis. He will see that your friends get their membership cards. You will feel proud of yourself for your efforts. Your friends will be happy to be of assistance and your Association will be more able to help us all."

The above, which was issued by the California State Beekeepers' Association, will do very well for a motto in any beekeepers' association, in any State of the Union. Try it on.

Ambition

By Berton Braley.

One of the most popular books in the libraries of merchant marine ships is one on beekeeping.

When I get through with the surgin' sea
I'm gonna have a farm an' keep a bee.
I'm gonna get a wife an' a snug white home
A long, long ways from the ocean foam.
We may have a cow an' a chick or so
An' a baby pig that'll grow and grow,
But the thing that most appeals to me
Is to have a hive an' a real tame bee.

With a cow an' bee life'll seem right sunny,
For a cow gives milk an' a bee gives honey;
An' with all the honey that a good bee makes
We'll sure have plenty for the buckwheat cakes.
So when I get through with the deep-sea stuff,
Which'll be as soon as I've saved enough,
I'll settle down an' I'll live in glee
The boss of a farm an' a nice tame bee.

There'll be no mate with a harsh bass voice,
But a Mate I've picked of my own free choice;
An' if they's kids, which I hope—gee whiz!
The bee can show 'em where the honey is.
For the sort of bee that I wanta find
Will be a bee that is sweet an' kind.
So I'll live right snug when I quit the sea
With the wife an' kids an' a nice tame bee.

—From American Legion Weekly.

English National Show Of Bees and Honey

The English National Show of bees and honey will be held at the Crystal Palace, with prizes of 45 pounds sterling ($225.00), silver and bronze medals and certificates, 5 miniature silver cups, appliances of a value of $100.00, etc. The dates are September 10 to 12, 1925.

W. E. Clifford, Secretary,
65 Southland Road, Bromley Common, Kent, England.

New Zealand Co-operative

John Unsworth reports in the Australasian Beekeeper that "the New Zealand Co-operative Honey Producers, Limited, has handled nearly all of New Zealand's surplus honey since 1914. It started with a capital of $15,000 and has grown to $175,000. There are seven members on the Board of Directors; all are well known commercial beekeepers.

Experimental Work For Beekeepers

Beekeepers frequently request from the office of Bee Culture Investigations information which can be given correctly only by carrying out an experiment with the bees to determine the answer. In many cases the beekeeper himself could readily perform the experiment, thus securing the answer to his problem in much less time than would be required for the correspondence necessary to secure information. It is with this thought in mind that the following notes are written:

Requests are received from time to time asking whether a low grade of "stock molasses" or "final molasses" will be safe to feed bees. Reply usually is made that any such molasses that the bees will take can be fed safely to be used for brood rearing at such times as the bees are flying freely. So much waste is present in such molasses that it should not be fed at a time when the bees cannot fly to void the excessive accumulation of feces. Frequently such molasses will not be taken at all by the bees, perhaps on account of containing poisonous or other deleterious substances.

Recently a sample of molasses was sent in with the request that it be examined in order to determine whether it would be good to feed to bees. The quickest and best test seemed to be to try it on the bees themselves.

Accordingly, four cages consisting of a frame of wood covered on each side with screen wire cloth were prepared. Seventy-five bees were placed in each cage, all being taken from the same colony so that uniform results might be secured. Four small vials were prepared with the feed to be tested, a square of cheesecloth being stretched over the mouth of each vial and held in place by a rubber band, one of these vials then being inverted and placed on the screen wire of each cage. One cage was given a vial of diluted molasses of the kind to be treated. A check cage was given a vial containing water only. Another check was given a vial of granulated sugar solution. A third check was given diluted honey.

Seventy-five bees were placed in each cage about 10 a. m. Bees began at once feeding in the honey and the sugar check cages also took a little of the water, but only a few bees took any of the molasses solution for some time. Those that did taste it backed away at once, wiping their tongues with their legs and manifesting considerable distress and nervousness. By 12 o'clock the effect of the molasses was noticeable in a general inactivity of the bees, some few being dead, others crawling feebly about, with none of the bees able to fly. Before 2 p. m. all but a few of the bees were dead. One bee in this cage survived until next morning. Probably this bee had considerable honey with it when put into the cage and therefore took no molasses at the beginning of the test.

At 2 p. m. of the same day the vial of molasses was transferred to the check cage which had only water. In this cage at this time one bee was almost dead, probably having been injured while caging. Within ten minutes most of the bees, being hungry, having had no food since 10 a. m., had taken some of the molasses and were showing signs of being poisoned. In half an hour all were unable to fly and many were dead. Only a few remained alive at 4:30 p. m. The next morning three bees were still alive, but soon died.

At 12 noon on the second day the food was taken away from the check cage having sugar syrup. They remained without food until 2 p. m., when the vial of molasses was given to them. No bees were dead in this cage at this time. The bees had become hungry and began greedily to feed on the molasses. At once the bees taking the syrup manifested distress and ran excitedly about the cage. Within ten minutes they were dying and many were partially paralyzed. First the wings, then the hinder legs and later the front legs became useless.

At 4 p. m. thirty-five of these bees were dead, and of the remaining forty none were able to fly more than a few inches. Next morning all the bees except five were dead and these few soon succumbed. The molasses solution consumed by the bees in the three cages was less than one-fifth the quantity of sugar syrup or of honey consumed by one lot of bees, indicating the highly poisonous character of some element in the molasses.

At this time, after being in the cage three days, only two bees were dead in the check cage having diluted honey as their food supply.

Such a test as the above, for instance, can be made easily by any beekeeper. If he then communicates the results to the bee journals, he will reach a large audience who would never receive the information if it were sent out from the laboratory to the individual who requested the information. The co-operation of all beekeepers in such work as suggested above will be of considerable benefit to the industry.

(Such statements as the above are exceedingly interesting.—Editor.)

Beekeeping vs. Bolshevism

Did you ever suggest beekeeping as an antidote for bolshevism? Those who have had contact with bees appear to have self-control and many other good traits. Massachusetts.

Answer.—No, I never looked at beekeeping in that light. But there is no doubt that the bees are communists of a better grade than the bolshevists. There is a long stretch between favoring communism and practicing it. The main trouble is that mankind is altogether too selfish ever to make good communists. The little bee keeps at work for the common good and never asks for any special favors. When she wears herself out, she willingly dies in the ditch. Beekeeping is certainly a good business in which to learn how to practice the Golden Rule; but will we ever follow it?

Crop and Market Report

Compiled by M. G. Dadant.

In writing to our reporters for the August page of Crop and Market we enclosed tentative schedule of prices for the 1925-26 season as published in the July issue of the American Bee Journal, asking each one of our reporters to give their criticism of the prices as suggested as well as give an idea of what the crop is for the year, so far.

THE CROP

In the Southeast, of course, the crop is pretty well harvested already and, according to some reports, 50 per cent of it is sold.

The crop will be about normal in all parts of the Southeast, excepting probably parts of Alabama and Kentucky and Florida, which are having rather less than last year. Mississippi and the sweet clover sections of Alabama report considerably in excess of last year, which is the first good crop they have had for a considerable period.

The New England States are about normal or perhaps a little less than last year.

New York will have at least as good a crop as last year and the clover is opening up well. Pennsylvania was extremely dry last year and will do much better this year.

Ohio has been very dry, in fact the crop has not been nearly as good as 1924, probably not over 50 per cent. This also applies to most parts of Indiana although the sweet clover and alsike flows have helped somewhat. Michigan and Wisconsin reports are excellent for a flow at least as good as last year and parts of Wisconsin claim 50 per cent more than last year. The same is true of Minnesota, which is having an unusually good year.

Illinois and Iowa, though stunted, will have considerably more honey than in 1924, thanks to late rains which have made the white clover produce abundantly and also conditions are very favorable for the sweet clover flow.

Northern and Northwestern Missouri report the best crop in fifteen years, while the southern part of the state, as well as southern Illinois, has been too dry and probably a little under normal.

In the north plain states the conditions are unusually flattering, as they are in western Iowa. There is no doubt but that the crop will be as good as last year, and possibly will exceed it.

As for Texas, the conditions have been very discouraging all through the year, and there is no doubt but that the crop will be considerably less than a year ago.

Some reports are that it will not be over 50 per cent of what it was in 1924. This is especially true of western Texas, which has had an extreme drought through practically all of the year.

New Mexico and Arizona have also had drought, but an unusual thing has occurred in that the mesquite has yielded honey in the face of the drought and in some sections bumper crops are reported. It is doubtful, however, whether there will be very great excess over 1924 production in these parts.

For the Inter-mountain territory conditions are, of course, just opening up, so that it is difficult to tell exactly what the crop will be, so far. It would appear, however, that eastern Colorado will have a light crop, whereas the western folks will have at least a normal flow. Wyoming and Utah will have about an average crop, and the same applies to Montana.

On the whole, the crop appears to be somewhat in excess of what it was in 1924. Washington and Oregon appear about normal and so does Nevada, which may possibly have a little bit more than normal crop.

Conditions have been exasperating throughout southern California. Orange did not yield nearly as much as was expected and the drought cut in severely on any other crop for the year. It is doubtful whether California has as much honey as it had in 1924, which was, as we all recall, a very slim year for that state.

Northern California will have an average crop this year.

All reports were unanimous that honey should hold at about the same price as last year, but several of them were free in predicting that there would be a lot of "cutraters" on the market early, dumping their honey at almost any price. One Illinois reporter expects to see comb honey retailing as low as 10c a pound before the season is over, which, of course, would preclude any possibility of good comb honey going on the market at a paying price.

In this connection, let us suggest that reporters in the big producing areas are agreed that comb honey is fast going off the market and big beekeepers are turning over rapidly to extracted honey as being very much more profitable and less work. This being the case, we see no reason why comb honey should not rule at very fine prices, provided there is sufficient to supply the demand and it is not completely elimated from the market. This is the danger which has been suggested by some of our western comb honey producers, that the public may forget comb honey entirely and go over to the use of extracted honey.

Let us not forget that the beekeeper himself is largely responsible or, he and his neighbors are at least responsible for the formation of the price market.

We have a very short fruit crop in many sections this year and honey demand, as a consequence, should be extremely good. Although the central areas where white clover is produced are harvesting, no doubt, a bumper crop, it is being harvested in the sections where the surplus can be used very readily.

All in all, we do not see why there should be a reduction in prices over a year ago. In fact, the prices should stabilize somewhere near the 1924-25 market. There has been an unusual activity on the part of buyers in European countries for honey such as has not been experienced for several years and this adds significance to the possibility of disposing of the crop at reasonable figures.

Undoubtedly, the prices as suggested below, since they are the same as 1924, would be too high if one were to figure that 1924 prices were in all cases remunerative. It is hardly likely, however, that the central west has been making bees pay during the lean years.

Of course, the "price cutter" does not figure this but figures anything he can get off of his bees as clear profit.

We believe that prices as suggested below should stand for the 1925-26 season.

	5-lb. Retail	Retail 10-lb.	Ton Lots 5-gal. White	Carload 5-gal. White	Carload 5-gal. Amber	Comb Fancy Case	Comb Car lot		Bulk Comb Retail	
							Choice	F'cy	5-lb.	10-lb.
East	$1.25-$1.50	$2.20-$2.50	12c	11c		$6.00-$7.00	$5.00	$5.50		
Southeast	.90- 1.25	1.75- 2.00	11c	10c	9-10c	5.50-6.00	4.50	5.75	$1.25	$2.50
Texas and Southwest	1.00- 1.25	1.75- 2.00	11c	10c	8-9½c		4.80	5.50	1.50	2.75
Central West	1.15- 1.35	2.00- 2.25	13c	11-12c	8-9½c	6.50	4.75	5.50	1.50	2.75
Plain States	1.00- 1.15	2.00- 2.15	12c	10-11c	8-9½c	6.00				
Inter-mountain	.90- 1.25	1.75- 2.00	12c	9-10c	8-9c	6.00	5.00	5.50		
Coast	1.00- 1.25	2.00- 2.25	12c	10-11c	9-10c	6.00	5.00	5.50		

CLASSIFIED DEPARTMENT

Advertisements in this department will be inserted for 5 cents per word, with no discounts. No classified advertisements accepted for less than 35 cents. Count each initial or number as one word.

Copy for this department must reach us not later than the 15th of each month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

As a measure of protection to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

BEES AND QUEENS

FOR SALE—Golden Italians bred for all the good qualities bees should possess, as well as for color. Queens only, untested, $1.00 each; 6 for $5.25; 12 or more, 75c each. Postpaid and safe arrival insured. State certificate of health included.
Hazel V. Bonkemeyer,
Randleman, N. C., Rt. 2.

GOLDEN ITALIAN QUEENS for 1925; the big, bright, hustling kind (the kind that gets the honey). Satisfied customers everywhere. Untested, 90c each; 6, $4.50; 12, $9.00 $70.00 per 100. Tested, $1.50 each. Safe arrival guaranteed.
E. F. Day, Honoraville, Ala.

SIMMONS QUEENS—Golden and 3-band; one, $1.00; six, $5.50; twelve, $10.00. Two-frame nucleus, $4.00; three-frame, $5.25. No disease. Satisfaction guaranteed. Fairmount Apiary, Livingston, N. Y.

BARGAIN QUEENS—Bright 3-band Italian queens, ideally bred from best strains obtainable, at bargain prices during August, in lots of 100 or more at 65c each, if in one order. One untested at any time, $1.00. No disease.
Chas. W. Quinn, Powhatan, Va.

FOR SALE—During the month of August I am going to offer for sale tested golden Italian queens at $2.00 each. These queens are an extra fine grade and sure to please. Let me have your order now and say what date you want a queen. Satisfaction guaranteed.
J. F. Michael, Winchester, Ind., Rt. 1.

FOR SALE—Three-band Italian queens that produce hardy and gentle bees the kind that get the honey. Untested, 80c each; 6, $4.75; 12, $9.00. Tested queens, $1.50 each. Safe arrival and satisfaction guaranteed.
Robt. B. Spicer, Wharton, N. J.

EUREKA QUEENS—Highly disease-resisting, American bred, copper colored Italians. Untested, July, one $2.00, six $11.00, twelve $20.00. Tested, $15.00 each.
Eureka Apiaries, A. C. F. Bartz, Mgr.
Jim Falls, Wis.

THREE-BAND ITALIAN QUEENS — One, select untested, $1.00; one dozen, $10.00. One select tested, $1.50.
J. Allen, Catharine, Ala.

GRAY CAUCASIANS, GRAY CARNIOLANS. Purity of race guaranteed. Fifteen years of real breeding and expert selection are behind them. Strong, long-lived and as producers of commercial honey have no superiors and few equals. Try them. Untested, $1.50; tested, $2.50; select tested, $3.00 each. Ten per cent off on lots of one dozen. Rates on 100 or more. No disease.
Chas. W. Quinn, Powhatan, Va.

QUEENS from stock we have been selecting for years. "Montana Fourteen" Quality first, $1.25 each.
B. F. Smith, Jr., Fromberg, Mont.

GOLDEN ITALIAN QUEENS—Untested, $1.00; 6 for $5.40; 12 or more, 80c each. Tested, $1.50; select tested, $2.50. Apiary inspected by state inspector; no disease found. Safe arrival and satisfaction guaranteed. D. T. Gaster,
Rt. 2, Randleman, N. C.

HARDY ITALIAN QUEENS—$1.00 each.
W. G. Lauver, Middletown, Md.

ITALIANS—Strong, hardy, vigorous. None better, few equal. Untested, $1.00; tested, $1.25. No disease.
Chas. W. Quinn, Powhatan, Va.

SHE-SUITS-ME QUEENS—Untested three-banders, $1.00 each; 25 or more ordered in advance, 75c each. Safe in cage with initial order. Allen Latham,
Norwichtown, Conn.

NORTH CAROLINA Bred Italian Queens of the Root strain of Italian Bees—Gentle and good honey gatherers. No disease. From May 10 until July 1, untested, $1.00 each; $10.00 per dozen. Tested, $1.50 each; selected tested, $2.25 each, and breeders $10 each. Safe arrival and satisfaction guaranteed. L. Parker,
R. F. D. No. 2, Benson, N. C.

FOR SALE—Choice bright Italian queens. I have been building up this strain for the last 20 years for vigorous hustlers, good winterers, gentleness and fine color. These queens will equal the best on the market. Health certificate goes with queens. Prices: untested queen, $1.25; 12 untested queens, $12.00; 1 breeder, $5.00.
Emil W. Gutekunst, Colden, N. Y.

FOR SALE—Golden queens producing bees yellow to tip; untested, $1.00; tested, $1.50; select tested, $2.50. Disease free, safe arrival and satisfaction guaranteed.
Address H. G. Karns, Victoria, Va.

BEES AND QUEENS—Golden and three-banded. Ready to ship March 20. Tested, each, $1.00; 12, $10.00; 50, $40.00; 100, $75.00. Untested, each, 75c; 12, $8.40; 50, $32.50; 100 $55.00. Satisfaction guaranteed. I. N. Bankston,
Rt. 6, Dallas, Texas.

BRIGHT three-banded Italian queens. Guaranteed in every way; 33 years' experience. Every queen a good queen. Price list sent on request.
J. F. Diemer, Liberty, Mo.

TRY my Caucasian or Italian 3-frame nucleus, also queens, and be your own judge. The yard inspected by the requirements of the law. Italian queens, 60c each.
Peter Schaffhauser, Havelock, N. C.

IMPORTED and domestic blood Italian queens. Select, 1, 90c; 6, $5.00.
Joseph Painter, Bellefontaine, Ohio.

SUPERIOR three-banded leather-colored Italian queens by return mail. Selected untested, 1 to 9, 65c; 10 to 49, 60c; 50 and up, 55c. Select tested, 1, $1.25; 12, $12.00. Guarantee safe arrival, satisfaction; no disease; ship only the best. Queens to please or your money back. All orders will be filled by return mail.
W. C. Smith & Co., Calhoun, Ala.

WARRANTED pure mated Italian queens, $1.00 each; mailed in my sure introducing cages. No blacks or hybrid bees around here, so the drones are pure Italian. Ten per cent off on 50 or more at one order.
Daniel Danielsen, Brush, Colo.

EDSON APIARIES reduced prices, effective July 1 and for balance of season. Our renowned select untested Italian queen bees may be secured at the following prices: 1, $1.00; 12, $11.00; 100, $85.00. Our usual prompt service and our guarantee embracing entire satisfaction of our stock apply to the above reduced prices.
Edson Apiaries, Gridley, Calif.

SWARTS' golden queens produce golden bees of highest quality. Untested, $1.25 each; 6 for $7.50. Satisfaction guaranteed.
D. L. Swarts, Lancaster, Ohio, Rt. 2.

FOR SALE—Italian queens ready May 15. One queen, $1.00; 6 queens, $5.50; 12 queens, $10.00. W. W. Talley,
R. 4, Greenville, Ala.

BRIGHT ITALIAN QUEENS—One, $1.00; 6 for $5.00 or 12 for $10.00. Write for prices on large orders or package bees.
P. B. Skinner, Greenville, Ala.

EARLY PACKAGE BEES & QUEENS that make a surplus the first season. Most northern breeder in California. See larger advt. J. E. Wing, Chico, Calif.

FOR SALE—Fine golden Italian queens, untested, $1.00 each; tested, $2.00. Ready for mailing May 20. Satisfaction guaranteed. J. F. Michael, Rt. 1, Winchester, Ind.

FINEST Italian queens, $1.00 each.
Wm. R. Stephens, Wingate, Indiana.

PURE ITALIAN QUEENS—Untested, $1.00; tested, $1.50; 2-lb. package, $3.00. Add price of queen wanted. Safe arrival guaranteed after May 10. Write for prices on colonies. Birdie M. Hartle
924 Pleasant St., Reynoldsville, Pa.

TEN YEARS of experience in breeding queens of quality Goldens, also gray Caucasians. Golden queens: one, $1.25; dozen, $11.50. Gray Caucasians, one, $1.50; dozen, $15.00. Pure mating. Safe arrival guaranteed in United States and Canada.
Tillery Bros., Rt. 5, Greenville, Ala.

LEATHER COLORED ITALIAN QUEENS—$2.00; after June 1st, $1.00. Tested, $2.00. A. W. Yates
15 Chapman St., Hartford, Conn.

PACKAGE BEES and three-band Italian queens that please. Our twenty years experience here in selective breeding of queens and the shipping of bees are at your service. No disease in this section. For prices, references, etc, write
Allenville Apiaries,
Allenville, Marengo County, Ala.

GOLDEN THREE-BANDED and Carniolan queens. Tested, $1.00; untested, 75c each. Bees in 1-pound package, $1.50; 2 pounds $2.50; 3 pounds, $2.25. Safe delivery guaranteed. C. B. Bankston,
Box 65, Buffalo, Leon Co., Texas.

IF you want good, bright Italian queens by return mail, send your order to us. Queens 75c each, $8.50 per dozen. One pound bees with queen, $3.00; two pounds bees with queen, $4.75. We pay charges.
Graydon Bros.,
Rt. 4, Greenville, Ala.

FOR SALE

FOR SALE—800 colonies and modern extracting outfit. Located in what is known as "The land of milk and honey" of the middle west. If you have cash and mean business write to "Beekeeper," care American Bee Journal.

FOR SALE—Bees and equipment worth $200, located in Lincoln County, Montana, on account of health of owner will be sacrificed for $135 cash. Small modern home with one acre of land, healthful climate, good water, good school, ready market for all honey from large apiary. Write for price and terms.
B. F. Smith, Jr., Fromberg, Mont.

FOR SALE—5 acres of land, house and 85 colonies of bees in good shape; no disease, good home market. If taken at once, crop included. Reason for selling, poor health.
Mrs. H. T. Welton, Winslow, Ill.

FOR SALE—12 colonies of Italian bees.
Miss McAuley, Lodi, Wis.

THREE horse-power "Waterloo Boy" gasoline engine in running order, $39.00; will accept extracted honey or cash.
Schmidt Bee Supply Co.,
1420-22 Hager Ave., St. Paul, Minn.

HONEY AND BEESWAX

FOR SALE—New crop of fine quality white clover honey in 60-lb. cans.
Irvin Nordgaard, Peterson, Minn.

NEW COMB Honey now ready to ship.
H. G. Quirin, Bellevue Ohio.

CHOICE SWEET CLOVER HONEY for sale at very attractive prices. State quantity desired and we will quote you f. o. b. Council Bluffs or Kansas City.
A. I. Root Company of Iowa,
Council Bluffs, Iowa.

Burr Combs

One Hundred In the Shade

By G. H. Cale.

Some gifted writer once wrote of the nobility of labor. If his words be true, then I am indeed a noble these days—for I have truly labored, not myself alone but other noblemen besides—all of us who have been sweating side by side in a real man's sized honeyflow. Yea, Boy—we're nobles. Behold our crown of dripping hair; our mantle of soaked blue denim.

Charles Dadant said, "The seasons follow each other but never resemble each other." That is true and, for me, this is the most peculiar season yet. In April, the clover looked beautiful, then a freeze turned it brown overnight and a dry spell almost finished it. Then it rained, not a gentle sprinkle but a drowning flood. Out from the remains crept the white clover heads, slowly, surely. The flow started, first at our east yards, 20 miles out. Supers there were filling moderately while the bees at home were still robbing at the first hive opened. A week of pelting thunder showers finally brought all the clover through and the bees at home settled down to work.

The flow being moderate, we went at things leisurely, but suddenly the weather changed and the days were hot, the nights relatively cool. Muggy days when the shirt is wet to your back and the bees sting right through. Such cross bees, even the best ones were cross. As one of us remarked, "They pin my shirt right to me."

And on we labor. Honey has to come off to make room for more. Right now each strong colony needs at least two supers for raw nectar and more supers for storage. Even that is not enough—nectar is all through the brood combs and queens wander around desperately for a few empty cells to lay in. No need to worry about swarms with these conditions. Only the weaklings swarm. As long as we can keep ahead of the game, every bee in the stronger colonies will continue harvesting.

It is beautiful while it lasts; but gosh, it's work. And how glad we are that the colonies were ready for it. Everything set just right.

If the flow keeps on the crop will pay. But, let the heat of the days creep up into the nights and the rains stop, then it will end. So much depends on the weather here. Honey crops, where irrigation is needed, are surer.

We depend on the rain, more so now than fifty years ago. Then the trees lined the streams and the headwaters were in densely wooded areas. Wood was cheap. A tree was a weed to the people in the river lands. So the trees were cut, not for lumber but to be burned—millions of feet of the best timber.

That is American history, a history of stupendous material waste. Today the water table along "The Father of Waters" is 27 feet lower than it was in 1864. It is easy to visualize what this means. Crops suffer without rain. Storms are more scattered and often more violent. China went through the same blind denudation and famine and suffering followed. The Yellow River area of China is fast becoming a desert.

I have no admiration for this sort of history. Individually, none of us have, yet as a society of people we move slowly towards its prevention, a necessary slowness, perhaps, but none the less dangerous.

In our neck of the woods we see the reflection of these changes in more frequent honeyflow failures. This may be in part due to the more intensive agriculture, but it also largely follows general drainage and a minimized water reserve.

So, I say we depend on frequent rains for our honeyflows. When a good flow comes, work piles up. No different than for all of us, you say. Oh, yes, it is, much different, if you are located in a really dependable region. During scant seasons the whole apiary program is disturbed. Only short periods of nectar flow allow only short periods of colony work. Requeening is not well done. Colony equipment, inside the hives, is never easily kept in shape, so, when the good year comes, all the slack of previous seasons is cast into the list of things to be done. It makes work double on us, often intensified, also, because it seems impossible to get reliable, experienced added help.

So, I say we labor and sweat, in our blue denim and unkempt hair, for the flow is on. If you visit us now you may expect to roll up your sleeves and get into it too. It is only 95-100 in the shade these days—how is it with you?